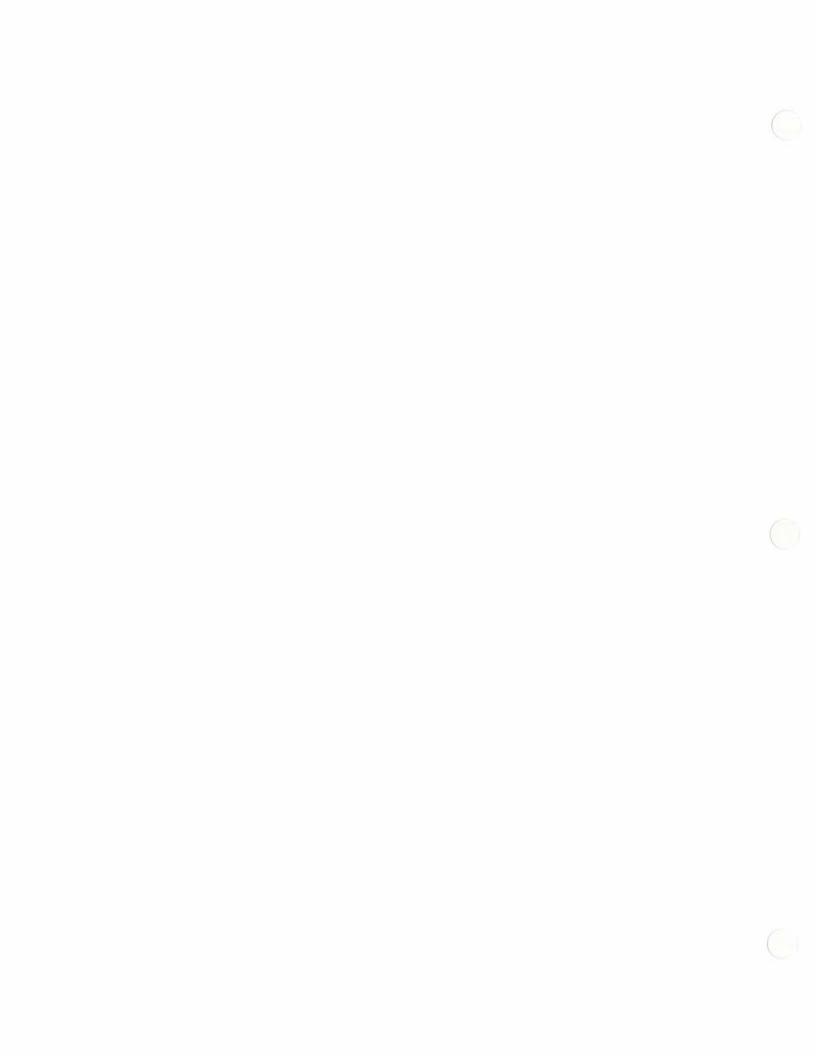
A-4-A	Standard TPL-002-0 System Performance Following Loss of a Single BES Element
A-4-B	Standard TPL 001 thru 004 WECC-1-CR System Performance Criteria
A-4-C	NWE: Business Practice OASIS Methodology Criteria and Process Effective 05/14/08
A-4-D	Western Electricity Coordinating Council (WECC), Overview of Policies Procedures for Regional Planning, Project Review, Project Rating Review, and Progress Reports, 04/05
A-4-E	NWE: MSTI Regional Planning Project Report (RPPR) 01/31/08
A-4-F	RPPR Comments with NWE Responses 03/20/08
A-4-G	WECC: MSTI RPPR PCC 04/23/08
A-4-H	NWE: MSTI Phase 1 Comprehensive Progress Report (CPR) 03/28/08
A-4-I	MSTI Phase 1 Report Comments from John Cummings to WECC 05/27/08
A-4-J	MSTI Phase 2 Acceptance 06/04/08
A-4-K	Northern Tier Transmission Group 2007 Annual Planning Report 03/26/08
A-4-L	NWE: Draft MSTI Phase 2 Study Plan 06/05/08

APPENDIX A-4 --- PLANNING

ARM 17.20.907 Transmission Facilities, Regional Reliability Criteria

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Idnignin	subject Maller	Response
(1)	An application for a transmission facility must contain a discussion of the reliability of the applicant's system and regional transmission system including the following:	Unlike a transmission line that is being build to serve network customers in a specific location such as Bozeman, MSTI is alleviating congestion between Montana and Idaho to deliver power to customers outside Montana.
(1)(a)	a description of the existing and desired levels of transmission system reliability and how the proposed facility affects the level of reliability;	Existing Level of Reliability The existing level system reliability for the WECC region that MSTI will operate is not easily quantified into a single measure or measures. However, the existing level of reliability will be consistent with the reliability requirements established by FERC/NERC and WECC standards or criteria. Compliance with the NERC Standards TPL-001 through TPL-004 requires Transmission Providers to annually certify through study that the transmission system reliability meets the NERC Standards for system reliability. If these studies identify reliability problems, then mitigation plans must be established to correct these problems. TPL-001 through TPL-004 Standards require system performance meet specified levels of reliability with all lines in service (TPL 001), with the loss of one element in TPL 002, with the loss of two or more elements in TPL 003 and extreme events in TPL 004. Table I, that is included in these Standards provide the minimum reliability requirement.



The desired level of transmission reliability that NWE seeks to achieve is NWE transmission system, but also how MSTI's affects other transmission Category D (extreme events). See A-4 Attachment A for the Table or more elements in TPL 003 and extreme events in TPL 004. Table I contingencies in TPL 001, loss of one element in TPL 002, loss of two meet the same NERC and WECC requirements, MSTI affect on NWE's performance for MSTI can be found in Table I, Transmission System attached to each of the NERC TPL-001 through TPL-004 Standards. The TPL reliability standards express system performance under no WECC: The impacts that MSTI can have on other bulk transmission includes reliability values for each TPL Standard - Category A (no performance that MSTI must meet is not limited to how MSTI affects one that meets NERC, WECC and NWE reliability requirements and systems is found in Table W-1, WECC Disturbance Performance With respect to NWE's transmission, in addition to requiring MSTI to systems. There are NERC and WECC Standards/Criteria that set contingencies - all lines service), Category B (loss of a single transmission system must also meet NWE's internal transmission The transmission system performance that MSTI must meet the NERC: The NERC bulk electric transmission system reliability Standards - Normal and Emergency Conditions. Table I is element), Category C (loss of two or more elements) and achieves a 1,500 MW north to south path flow. The reliability minimum reliability performance that MSTI must meet. Attachment A for the Table I requirements. following standards and criteria. reliability performance criteria. Desired Level of Reliability l requirements.



		Table of Allowed Effects on Other Systems. Table W-1 is provided within A-4 Attachment B.
		NWE Internal: NWE's own steady state thermal and voltage planning criteria that is followed is shown in A-4 Attachment C, starting on page 16. NWE's criteria are filed annually with FERC as part of NWE's FERC 715 filing.
		How MSTI Affect Reliability
		MSTI will not negatively impact the existing regional electric transmission system reliability. Reliability will be ensured because MSTI must go through the WECC Procedures For Project Rating Review. The WECC Path Rating Review establishes a set of well-defined principles for determining Accepted Ratings for Transmission Paths. To achieve an Accepted Path Rating, meeting the above criteria is not an option because it will not tolerate unacceptable reliability performance. "All participants are expected to follow the principles; consequently, they must be practical, technically sound, unambiguous, and promote efficient utilization of the system while maintaining the standards within the Reliability Criteria. The determination of an Accepted Rating for a path is important for several reasons, including but not limited to, assuring reliable operation, determining access or contract rights, and establishing scheduling limits." See A-4 Attachment D; OVERVIEW OF POLICIES AND PROCEDURES FOR REGIONAL PLANNING PROJECT REVIEW, PROJECT RATING REVIEW, AND PROGRESS REPORTS, page 40.
(1)(b)	as relevant an explanation of the rationale for the selection of the applicant's desired level of reliability;	NWE did not select a specific level of reliability; instead the desired level of reliability will be the result of the WECC Path Rating Review process and by meeting the required NERC, WECC and NWE standards and criteria. The WECC Path Rating Review process is shown in A-4 Attachment D. The steady state voltage and thermal performance, the dynamic system performance and post fault



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		voltage performance that MSTI must meet are found in A-4 Attachments A-C, which were described in (1)(a).
(1)(c)	the planning assumptions and rules used to maintain the desired level of transmission reliability;	Assumptions The WECC path rating planning process (described below) that has been in place for many years requires the use of critical load, resource dispatch and outage patterns assumptions in the analysis. As described below, the WECC Regional Planning Project Review and Project Rating Review processes are required to achieve a WECC Accepted Path Rating. An explanation of the study assumptions for the Phase 1 Project Rating Review can be found on page 9 of the completed Comprehensive Progress Report (see Attachment A-4 Attach H MSTI CPR FINAL.pdf). Also, NWE has initiated Phase 2 Project Rating Review and has developed a draft Study Plan. In this Phase 2 Study Plan NWE must define the critical study assumptions that will be used in this more detailed study (see page 5-12, Attachment A-4 Attach L Phase 2 study plan).
		WECC Regional Rules
		The WECC rules (i.e., policies) and procedures that must be followed to be granted an Approved Path Rating can be found in Attachment A-4 Attach D Overview Policies Procedures Regional Planning Project Review Project Rating Progress Reports_07-05.pdf. These WECC Policies and Procedures are comprised of three WECC processes:
		1. WECC Regional Planning Project Review (RPPR); This is a process intended to inform others of the opportunity to participate in or review a project, and to solicit participation. It is intended to avoid duplicate projects and allow a new project to integrate others
		needs by mutual agreement. The Regional Planning Review Process encompasses the initial development phase of a project in which regional interest is expressed. The Process addresses how



members cooperate to identify transmission expansion projects that significant regional benefit or impact. Through this process, WECC may be beneficial to the region. By following this process, project Iransmission project sponsors should work and interact with other sponsors may also address certain issues related to regulatory parties when developing a project that has or may have a approval of their projects.

MSTI STATUS: NWE has completed the RPPR. NWE formed a Regional Planning Review Group (RPRG) that was open to the Public and held meetings on August 9, 2007, September 17, 2007, October 30, 2007 and December 18, 2007. Participation in these meetings included representatives from Bonneville Power Administration (BPA), Powerex, PPL Montana, Idaho Power Company, USE Inc., URS Corporation, Sweetgrass Energy, PacifiCorp, Columbia Grid, Portland General Electric and Sierra Pacific.

On February 13, 2008, the Regional Planning Project Report for the project was provided to PCC for a 30-day comment period. This comment period allowed PCC members the opportunity to review and comment on the project conformity with the Regional Planning Guidelines. PPL Montana provided NWE with comments on the Regional Planning Project Report, and NWE addressed these comments in a follow-up document. Accordingly, this letter serves as notification that the Regional Planning Project Review has been completed for the MSTI project.

On April 23, 2008, the Planning Coordination Committee chair issued a letter of acceptance of NWE's MSTI Regional Planning Report.

The MSTI Regional Planning Project Report, comments on the



report received from PPL Montana with NWE's response, and Planning Review are provided as Attachments A-4 Attach E the PCC chair letter granting completing of the Regional through G.

ensure that new projects are integrated into the existing system with a rating while recognizing protected ratings of other facilities. The purpose of the Procedure for Project Rating Review is to provide a rating of existing facilities, requiring coordination through a review addresses planned new facility additions and upgrades or the reformal process for project sponsors to attain a WECC Accepted group comprised of the project sponsors and representatives of 2. WECC Project Rating Review (PRR); This is a process intended to NERC/WECC Planning Standards. This three-phase process Rating and demonstrate how their project will meet the other systems which may be affected by the project.

granting Phase 2 status. See Attachments A-4 Attach H through and submitting the CPR to WECC for a 60-day peer-review and echnical Studies Subcommittee chair granting MSTI PRR Phase comment period, addressing any comments received during MSTI STATUS: NWE has completed Phase 1 of the PRR, which 2 status. NWE has completed all elements of Phase 1 and is the comment period, and receiving a letter from the WECC includes preparing a Comprehensive Progress Report (CPR) waiting for the Technical Studies Subcommittee chair letter

opportunity to review and comment on these additions or changes. 3. WECC Progress Reports; A process by which the project sponsor interconnected system and WECC members are provided the reports potential significant additions and changes to the

MSTISTATUS: On July 26, 2007, NorthWestern Energy (NWE)

Process for the NWE sponsored MSTI project. NWE's latest report is the Comprehensive Progress Report provided in Attachment notified the Western Electricity Coordinating Council (WECC) that it was initiating the WECC Regional Planning Review Northern Tier Transmission Group (NTTG) Sub-Regional Rules A-4 Attach H.

FERC's February 16, 2007, Order No. 890 establishes requirements for jurisdictional utilities regional planning and coordination of their transmission plans. With knowledge that this requirement was forthcoming, several sub-regional planning groups were formed within the WECC footprint. These sub-regional planning groups were formed with an understanding that WECC would be the Regional Reliability Organization responsible for regional planning. The Northern Tier Transmission Group (NTG) was formed in the autumn of 2006 to establish a sub regional planning process that would meet the needs of its members by coordinating the operation and expansion of transmission to serve customers and wholesale power markets.

To satisfy NWE's FERC Order 890 requirement for regional/sub-regional planning, NWE is an active member of several NTIG committees, including the Transmission Planning Committee. NTIG will receive input from its members to develop the NTIG sub-regional coordinated plan. The NTIG sub-regional plan will be coordinated with adjacent sub-regional groups, other planning entities and to provide the WECC Transmission Expansion Policy and Planning Committee ("WECC TEPPC") for regional planning coordination.

MSTI STATUS: In 2007, NWE included MSTI in the NTIG planning process known as the Fast-Track Project Process. The Fast-Track Project Process was used in 2007 to identify projects needed for reliability and to meet Transmission Service Requests. The NTIG Annual Planning Report – 2007 (see A-4 Attachment A) provides

		additional process detail and a list of Fast-Track Project, which includes MSTI. These Fast-Track Projects were submitted to WECC for regional planning consideration.
		The NTIG Planning Group will biennially prepare a long-term (10 year) bulk transmission expansion plan, while taking into consideration up to a twenty year planning horizon. The plan will provide strategic transmission options (economic and reliability projects) and specific alternative plans for reinforcing the transmission system. The plan is also intended to help coordinate the integration of new generation into the system and to reduce transmission congestion. Primarily the transmission owners in the footprint utilities will complete the work with input from all interested stakeholders.
		MSTI STATUS: MSTI is included in the 2008-2009 NTIG Biannual Plan for appropriate sub-regional evaluation and coordination with other projects and with regional and other sub-regional planning entities. No report from the Biannual Plan has been developed at this time.
(1)(d)	as relevant, the expected frequency of interruption of service to customers on the applicant's transmission system under current reliability criteria, and the extent to which that frequency of interruption is associated with outages of generation, transmission, and distribution facilities; and	Addition of the MSTI line between Montana and Idaho will not affect the frequency of interruption of service to network customer service.
(1)(e)	an economic evaluation of alternate levels of reliability.	Since MSTI is a transmission line that is alleviating transmission congestion between Montana and Idaho, the levels of reliability that

Mountain States Transmission Intertie MFSA Application

Standard TPL-002-0 — System Performance Following Loss of a Single BES Element

A. Introduction

1. Title: System Performance Following Loss of a Single Bulk Electric System Element (Category B)

2. Number:

TPL-002-0

3. Purpose: System simulations and associated assessments are needed periodically to ensure that reliable systems are developed that meet specified performance requirements with sufficient lead time, and continue to be modified or upgraded as necessary to meet present and future system needs.

4. Applicability:

- 4.1. Planning Authority
- 4.2. Transmission Planner
- 5. Effective Date:

April 1, 2005

B. Requirements

- R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission system is planned such that the Network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand levels over the range of forecast system demands, under the contingency conditions as defined in Category B of Table I. To be valid, the Planning Authority and Transmission Planner assessments shall:
 - **R1.1.** Be made annually.
 - **R1.2.** Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons.
 - **R1.3.** Be supported by a current or past study and/or system simulation testing that addresses each of the following categories,, showing system performance following Category B of Table 1 (single contingencies). The specific elements selected (from each of the following categories) for inclusion in these studies and simulations shall be acceptable to the associated Regional Reliability Organization(s).
 - R1.3.1. Be performed and evaluated only for those Category B contingencies that would produce the more severe System results or impacts. The rationale for the contingencies selected for evaluation shall be available as supporting information. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information.
 - **R1.3.2.** Cover critical system conditions and study years as deemed appropriate by the responsible entity.
 - **R1.3.3.** Be conducted annually unless changes to system conditions do not warrant such analyses.
 - **R1.3.4.** Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions.
 - **R1.3.5.** Have all projected firm transfers modeled.

Adopted by NERC Board of Trustees: February 8, 2005 Effective Date: April 1, 2005

Standard TPL-002-0 — System Performance Following Loss of a Single BES Element

- **R1.3.6.** Be performed and evaluated for selected demand levels over the range of forecast system Demands.
- R1.3.7. Demonstrate that system performance meets Category B contingencies.
- R1.3.8. Include existing and planned facilities.
- **R1.3.9.** Include Reactive Power resources to ensure that adequate reactive resources are available to meet system performance.
- **R1.3.10.** Include the effects of existing and planned protection systems, including any backup or redundant systems.
- R1.3.11. Include the effects of existing and planned control devices.
- **R1.3.12.** Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed.
- **R1.4.** Address any planned upgrades needed to meet the performance requirements of Category B of Table I.
- **R1.5.** Consider all contingencies applicable to Category B.
- **R2.** When System simulations indicate an inability of the systems to respond as prescribed in Reliability Standard TPL-002-0_R1, the Planning Authority and Transmission Planner shall each:
 - **R2.1.** Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon:
 - **R2.1.1.** Including a schedule for implementation.
 - **R2.1.2.** Including a discussion of expected required in-service dates of facilities.
 - **R2.1.3.** Consider lead times necessary to implement plans.
 - **R2.2.** Review, in subsequent annual assessments, (where sufficient lead time exists), the continuing need for identified system facilities. Detailed implementation plans are not needed.
- R3. The Planning Authority and Transmission Planner shall each document the results of its Reliability Assessments and corrective plans and shall annually provide the results to its respective Regional Reliability Organization(s), as required by the Regional Reliability Organization.

C. Measures

- M1. The Planning Authority and Transmission Planner shall have a valid assessment and corrective plans as specified in Reliability Standard TPL-002-0_R1 and TPL-002-0_R2.
- M2. The Planning Authority and Transmission Planner shall have evidence it reported documentation of results of its reliability assessments and corrective plans per Reliability Standard TPL-002-0 R3.

Adopted by NERC Board of Trustees: February 8, 2005 Effective Date: April 1, 2005

Standard TPL-002-0 — System Performance Following Loss of a Single BES Element

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Compliance Monitor: Regional Reliability Organizations.

Each Compliance Monitor shall report compliance and violations to NERC via the NERC Compliance Reporting Process.

1.2. Compliance Monitoring Period and Reset Timeframe

Annually.

1.3. Data Retention

None specified.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance

- 2.1. Level 1: Not applicable.
- 2.2. Level 2: A valid assessment and corrective plan for the longer-term planning horizon is not available.
- 2.3. Level 3: Not applicable.
- **2.4.** Level 4: A valid assessment and corrective plan for the near-term planning horizon is not available.

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New

Effective Date: April 1, 2005

Standard TPL-002-0 — System Performance Following Loss of a Single BES Element

Table I. Transmission System Standards — Normal and Emergency Conditions

Category	Contingencies	System Limits or Impacts		
Category	Initiating Event(s) and Contingency Element(s)	System Stable and both Thermal and Voltage Limits within Applicable Rating ^a	Loss of Demand or Curtailed Firm Transfers	Cascading Outages
A No Contingencies	All Facilities in Service	Yes	No	No
B Event resulting in the loss of a single element.	Single Line Ground (SLG) or 3-Phase (3Ø) Fault, with Normal Clearing: 1. Generator 2. Transmission Circuit 3. Transformer Loss of an Element without a Fault.	Yes Yes Yes Yes	No ^b No ^b No ^b No ^b	No No No
	Single Pole Block, Normal Clearing ^e : 4. Single Pole (dc) Line	Yes	No ^b	No
C Event(s) resulting in the loss of two or more (multiple)	SLG Fault, with Normal Clearing ^e ; 1. Bus Section 2. Breaker (failure or internal Fault)	Yes Yes	Planned/ Controlled ^c Planned/ Controlled ^c	No No
elements.	SLG or 3Ø Fault, with Normal Clearing ^e , Manual System Adjustments, followed by another SLG or 3Ø Fault, with Normal Clearing ^e : 3. Category B (B1, B2, B3, or B4) contingency, manual system adjustments, followed by another Category B (B1, B2, B3, or B4) contingency	Yes	Planned/ Controlled ^e	No
	Bipolar Block, with Normal Clearing ^e : 4. Bipolar (dc) Line Fault (non 3Ø), with Normal Clearing ^e :	Yes	Planned/ Controlled ^c	No
	 Any two circuits of a multiple circuit towerline^f 	Yes	Planned/ Controlled ^c	No
	SLG Fault, with Delayed Clearing ^e (stuck breaker or protection system failure): 6. Generator	Yes	Planned/ Controlled ^c	No
	7. Transformer	Yes	Planned/ Controlled ^c	No
	8. Transmission Circuit	Yes	Planned/ Controlled ^c	No
	9. Bus Section	Yes	Planned/ Controlled ^e	No

Adopted by NERC Board of Trustees: February 8, 2005 Effective Date: April 1, 2005

Standard TPL-002-0 System Performance Following Loss of a Single BES Element

	3Ø Fault, with Delayed Clearing ^e (stuck breaker or protection system failure):	Evaluate for risks and consequences.	
two or more (multiple)	1. Generator 3. Transformer	 May involve substantial loss of customer Demand and 	
Cascading out of service	Transmission Circuit Bus Section	generation in a widespread area or areas. • Portions or all of the	
	3Ø Fault, with Normal Clearing $\stackrel{\mathfrak{C}}{:}$		
	5. Breaker (failure or internal Fault)	interconnected systems may or may not achieve a new,	
	Loss of towerline with three or more circuits	stable operating point. Evaluation of these events may	
	7. All transmission lines on a common right-of way	require joint studies with neighboring systems.	
	8. Loss of a substation (one voltage level plus transformers)		
	9. Loss of a switching station (one voltage level plus transformers)		
	10. Loss of all generating units at a station		
	11. Loss of a large Load or major Load center		
	 Failure of a fully redundant Special Protection System (or remedial action scheme) to operate when required 		
	 Operation, partial operation, or misoperation of a fully redundant Special Protection System (or Remedial Action Scheme) in response to an event or abnormal system condition for which it was not intended to operate 		
	 Impact of severe power swings or oscillations from Disturbances in another Regional Reliability Organization. 		

- a) Applicable rating refers to the applicable Normal and Emergency facility thermal Rating or system voltage limit as determined and consistently applied by the system or facility owner. Applicable Ratings may include Emergency Ratings applicable for short durations as required to permit operating steps necessary to maintain system control. All Ratings must be established consistent with applicable NERC Reliability Standards addressing Facility Ratings.
- b) Planned or controlled interruption of electric supply to radial customers or some local Network customers, connected to or supplied by the Faulted element or by the affected area, may occur in certain areas without impacting the overall reliability of the interconnected transmission systems. To prepare for the next contingency, system adjustments are permitted, including curtailments of contracted Firm (non-recallable reserved) electric power Transfers.
- c) Depending on system design and expected system impacts, the controlled interruption of electric supply to customers (load shedding), the planned removal from service of certain generators, and/or the curtailment of contracted Firm (nonrecallable reserved) electric power Transfers may be necessary to maintain the overall reliability of the interconnected transmission systems.
- d) A number of extreme contingencies that are listed under Category D and judged to be critical by the transmission planning entity(ies) will be selected for evaluation. It is not expected that all possible facility outages under each listed contingency of Category D will be evaluated.
- e) Normal clearing is when the protection system operates as designed and the Fault is cleared in the time normally expected with proper functioning of the installed protection systems. Delayed clearing of a Fault is due to failure of any protection system component such as a relay, circuit breaker, or current transformer, and not because of an intentional design delay.
- f) System assessments may exclude these events where multiple circuit towers are used over short distances (e.g., station entrance, river crossings) in accordance with Regional exemption criteria.

Adopted by NERC Board of Trustees: February 8, 2005

Effective Date: April 1, 2005



Name: TPL - (001 thru 004) - WECC - 1 - CR - System Performance Criteria

Definitions

Common Corridor:

Contiguous right-of-way or two parallel right-of-ways with structure centerline separation less than the longest span length of the two transmission circuits at the point of separation or 500 feet, whichever is greater, between the transmission circuits. This separation requirement does not apply to the last five spans of the transmission circuits entering into a substation.

Adjacent Transmission Circuits:

Transmission circuits within a Common Corridor with no other transmission circuits between them. Transmission Lines that cross but are otherwise on separate corridors are not Adjacent Transmission Circuits.

A. Introduction

1. Title: System Performance Criteria Under Normal Conditions, Following Loss of a Single BES Element, and Following Extreme BES Events

2. Numbers: TPL-001-WECC-1-CR

TPL-002-WECC-1-CR

TPL-003-WECC-1-CR

TPL-004-WECC-1-CR

- 3. Purpose: System simulations and associated assessments are needed periodically to ensure that reliable systems are developed that meet specified performance requirements with sufficient lead time, and continue to be modified or upgraded as necessary to meet present and future system needs.
- 4. Applicability
 - 4.1. Planning Authority
 - 4.2. Transmission Planner
- Effective Date: April 18, 2008

B. Requirements

- WRS1. In addition to NERC Table I, Planning Authorities or Transmission Planners shall comply with the WECC Disturbance-Performance Table (Table W-1) of Allowable Effects on Other Systems contained in this section when planning the Western Interconnection. Table W-1 does not apply internal to a Transmission Operator Area.
 - WRS1.1. The NERC Category C.5 initiating event of a non-three phase fault with normal clearing shall also apply to the common mode contingency of two Adjacent Transmission Circuits on separate towers unless the event frequency is determined to be less than one in thirty years.
 - WRS1.2. The common mode simultaneous outage of two generator units connected to the same switchyard, not addressed by the initiating events in NERC Category C, shall not result in cascading.
 - WRS1.3. The loss of multiple bus sections as a result of a failure or delayed clearing of a bus tie or bus sectionalizing breaker shall meet the performance specified for Category D of Table W-1.
 - WRS1.4. For contingencies involving existing or planned facilities, the Table W-1 performance category can be adjusted based on actual or expected performance (e.g. event outage frequency and consideration of impact) after receiving Board approval to change the Performance Level Adjustment Record.
- WRS2. Individual systems or a group of systems may apply requirements that differ from specific requirements in Table W-1 for internal impacts. If the individual requirements are less stringent, other systems are permitted to have the same impact on that part of the individual system for the same category of disturbance. If these requirements are more stringent, these requirements may not be imposed on other systems. This does not relieve the system or group of systems from WECC requirements for impacts on other systems.

- WRS3. Reactive power resources, with a balance between static and dynamic characteristics, shall be planned and distributed throughout the interconnected transmission systems to ensure system performance as defined below.
 - WRS3.1. For transfer paths, voltage stability is required with the pre-contingency path flow modeled at a minimum of 105% of the path rating for system normal conditions (Category A) and for single contingencies (Category B). For multiple contingencies (Category C), post-transient voltage stability is required with the pre-contingency transfer path flow modeled at a minimum of 102.5% of the path rating.
 - WRS3.2. For load areas, voltage stability is required for the area modeled at a minimum of 105% of the reference load level for system normal conditions (Category A) and for single contingencies (Category B). For multiple contingencies (Category C), post-transient voltage stability is required with the area modeled at a minimum of 102.5% of the reference load level. For this criterion, the reference load level is the maximum established planned load limit for the area under study.
 - WRS3.3. Specific requirements that exceed the minimums specified in WRS3.1 and WRS3.2 may be established, to be adhered to by others, provided that technical justification has been approved by the Planning Coordination Committee (PCC) of the WECC.
 - **WRS3.4.** WRS3 applies to internal WECC Member Systems as well as between Member Systems.
- WRS4. The Planning Authorities and Transmission Planners shall meet the same performance category for unsuccessful reclosing as that required for the initiating disturbance without reclosing.
- WRS5. For any event that has actually resulted in cascading, action must be taken so that future occurrences of the event will not result in cascading, or it must demonstrate that the Mean Time Between Failure (MTBF) is greater than 300 years (frequency less than 0.0033 outages/year) and approved by PCC.
 - WR5.1. Any contingency adjusted to Category D must not result in a cascading outage unless the MTBF is greater than 300 years (frequency less than 0.0033 outages/year) or the initiating disturbances and corresponding impacts are confined to either a radial system or a local network.

C. Measures

- WMS1. Planning Authority or Transmission Planner has documentation that it complies with the WECC Disturbance-Performance Table (Table W-1) of Allowable Effects on Other Systems as required by WRS1.
- WMS2. The Planning Authority or Transmission Planner has documentation that it has planned for reactive power resource as required by WRS3.
- WMS3. The Planning Authority or Transmission Planner has documentation that it meets the same performance category for unsuccessful reclosing as required by WRS4.
- WMS4. The Planning Authority or Transmission Planner with less stringent individual requirements than these WECC requirements has documentation that other Planning

Name: TPL - (001 thru 004) - WECC - 1 - CR - System Performance Criteria

Authorities or Transmission Planners performance are permitted to have the same impact on that part of the individual system for the same category of disturbance.

- WMS5. The Planning Authority or Transmission Planner has documentation that it has Planning Coordination Committee (PCC) approval to adjust in Table W-1 the Performance Level Adjustment Record involving existing or planned facilities.
- WMS6. For any event that has actually resulted in cascading, the Planning Authority or Transmission Planner shall have documentation that it has taken action so that future occurrences of the event will not result in cascading, or it must have documentation that it has PCC approval that the Mean Time Between Failure (MTBF) is greater than 300 years (frequency less than 0.0033 outages/year).

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Western Electricity Coordinating Council (WECC)

1.2. Compliance Monitoring Period and Reset

Annual

1.3. Data Retention

Four Years

1.4. Additional Compliance Information

None

Version History - Shows Approval History and Summary of Changes in the Action Field

Version	Date	Action	Change Tracking
1 April 18, 2008		Replaces the Part I - NERC/WECC Planning Standards	•

WECC DISTURBANCE-PERFORMANCE TABLE OF ALLOWABLE EFFECTS ON OTHER SYSTEMS

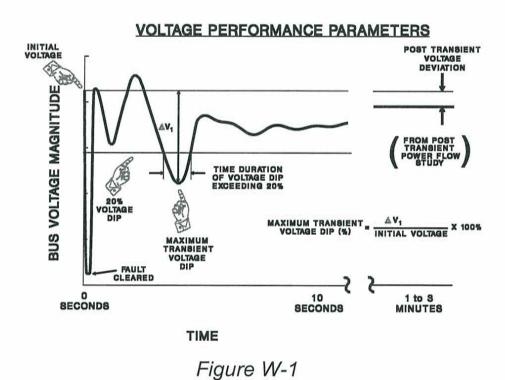
NERC and WECC Categories	Outage Frequency Associated with the Performance Category (outage/year)	Transient Voltage Dip Standard	Minimum Transient Frequency Standard	Post Transient Voltage Deviation Standard (See Note 3)
A	Not Applicable		Nothing in addition	to NERC
В	≥ 0.33	Not to exceed 25% at load buses or 30% at non- load buses. Not to exceed 20% for more than 20 cycles at load buses.	Not below 59.6 Hz for 6 cycles or more at a load bus.	Not to exceed 5% at any bus.
С	0.033 - 0.33	Not to exceed 30% at any bus. Not to exceed 20% for more than 40 cycles at load buses.	Not below 59.0 Hz for 6 cycles or more at a load bus.	Not to exceed 10% at any bus.
D	< 0.033	Nothing in addition to NERC		

Notes:

- 1. The WECC Disturbance-Performance Table applies equally to either a system with all elements in service, or a system with one element removed and the system adjusted.
- 2. As an example in applying the WECC Disturbance-Performance Table, a Category B disturbance in one system shall not cause a transient voltage dip in another system that is greater than 20% for more than 20 cycles at load buses, or exceed 25% at load buses or 30% at non-load buses at any time other than during the fault.

Table W-1

- 3. If it can be demonstrated that post transient voltage deviations that are less than the values in the table will result in voltage instability, the system in which the disturbance originated and the affected system(s) shall cooperate in mutually resolving the problem.
- 4. Refer to Figure W-1 for voltage performance parameters.
- 5. Load buses include generating unit auxiliary loads.
- 6. To reach the frequency categories shown in the WECC Disturbance-Performance Table for Category C disturbances, some planned and controlled islanding may occur. Underfrequency load shedding is expected to arrest this frequency decline and assure continued operation within the resulting islands.
- 7. For simulation test cases, the interconnected transmission system steady state loading conditions prior to a disturbance shall be appropriate to the case. Disturbances shall be simulated at locations on the system that result in maximum stress on other systems. Relay action, fault clearing time, and reclosing practice shall be represented in simulations according to the planning and operation of the actual or planned systems. When simulating post transient conditions, actions are limited to automatic devices and no manual action is to be assumed.





Business Practice

OASIS Methodology, Criteria and Process

FERC Order 890 Transparency Principle

Effective Date)			
From:	May	14,	2008	
To:				

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Introduction

NorthWestern Energy ("NWE") methodology, process and criteria described herein are used to evaluate the transmission system, ensuring that system reliability is maintained into the future. Reliability, by definition, examines the adequacy and security of the electric transmission system. One of NWE's transmission planning goals is to identify the best solution to resolve a transmission reliability concern.

FERC Order 890 Principle 3, Transparency, includes the following requirement.

"In addition, transmission providers will be required to reduce to writing and make available the basic methodology, criteria, and processes they use to develop their transmission plan, including how they treat retail native loads, in order to ensure that standards are consistently applied." Paragraph 471

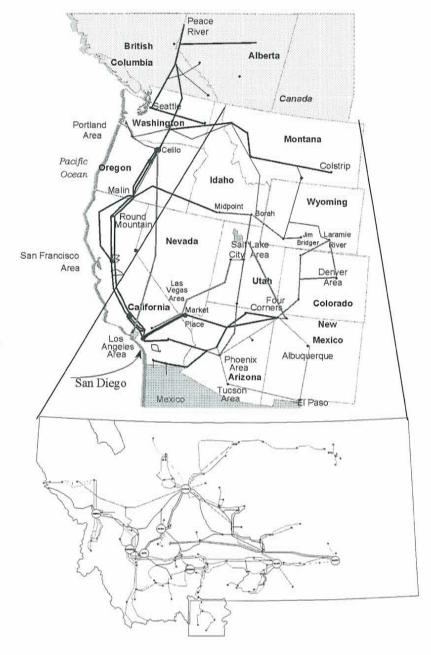
The above requirement calls for information as to "how they treat retail native loads, in order to ensure that standards are consistently applied." Consistent application of the methodology, criteria, and process for all balancing area customers (i.e., retail, network and point-to-point) information is ensured through the openness and transparency of NWE's process. All customers are treated on an equal and comparable basis using the transmission system planning process, methodology and criteria described herein. All customer data are included in the planning analysis without regard to their classification. NWE's transmission system planning process is designed to be transparent, open and understandable. The information described herein reflects existing practice, with the addition of new processes that encompass Order 890 transmission system planning requirements. For example, NWE planning process is being expanded to include input from stakeholders and other interested parties during the planning stage.

FERC Order 890 makes a distinction between the transmission system planning for load due to customers' needs (i.e., system planning) and planning for new generation interconnection. NWE adheres to the FERC Large Generation Interconnection Procedures ("LGIP") and Small Generation Interconnection Procedures ("SGIP") requirements to study generation interconnection. In studying a request for transmission service, NWE follows its tariff requirements as provided on NWE's OASIS Website (see http://www.oatioasis.com/NWMT/). This process is also described in NWE's Transmission Service Study Procedures Manual that is posted on NWE's OASIS Website. NWE's study methods requirements for large new transmission-connected load can also be found on NWE's OASIS Website.

NWE Local Transmission System

NWE local transmission system provides regulated electric transmission services to approximately 300,000 electric customers. NWE's electric transmission system consists of approximately 7,000 miles of transmission lines and associated terminal facilities. NWE is registered as a Balancing Authority, Planning Authority and Transmission Planner. NWE does not currently own generation.

The transmission system, with voltage levels ranging from 50,000 to 500,000 volts, serves an area of 97,540 square miles, which is equivalent to two-thirds of Montana. The 500 kV transmission system is primarily used to move power from

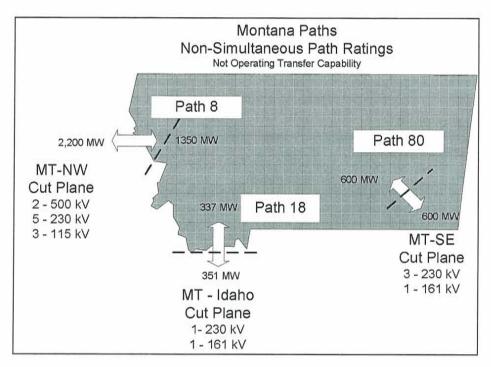


Colstrip in eastern Montana to the Northwest. NWE's transmission system has interconnections to five major transmission systems¹ located in the Western Electricity Coordinating Council ("WECC") area and one DC interconnection to a system that connects with the Mid-Continent Area Power Pool ("MAPP") region.

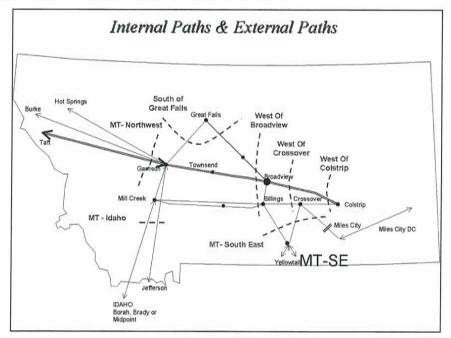
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¹ Idaho Power Company, Avista Corporation, Bonneville Power Administration, Western Area Power Administration and PacifiCorp.

The following graphic displays the external paths and associated non-simultaneous path ratings.



The graphic below also displays NWE's internal paths.



Basic Methodology

Below is a discussion of NWE's basic methodology that is used to formally analyze its local transmission system. By application of this methodology, NWE ensures that a reliable transmission system exists to serve network customer load and firm point-to-point transmission service requests. NWE's methodology is intended to define operating conditions that fail to meet reliability criteria and then identify solutions (e.g., transmission and non-transmission²) that solve the problem. The operating conditions are for a specific instant in time, such as peak load conditions, and are not an integrated time period, such as an hour, day, month, etc. NWE's basic methodology described below is focused on transmission reliability and not economic congestion studies that can be requested by customers.

NWE's goal is to design a reliable, least cost transmission system that will perform under expected operating conditions wherein customer load can be met reliably into the future. NWE's methodology includes transmission system planning and the WECC Annual Study Plan.

NWE Transmission System Planning Methodology

NWE's methodology includes the four steps shown in the graph to the right. These steps are (1) Goal and Scenario Definition, (2) Technical Study, (3) Decision, and (4) Reporting. How these steps are weaved together to formulate the transmission plan is described in the Process section of this document. Transmission system planning may be

Goal & Scenario
 Technical Study
 Decision

4. Reporting

confined to a specific geographic area, such as the Bozeman area, or it may be broadened to examine a specific transmission line or lines that extend over a large geographic area, such as NWE's Montana balancing area. The transmission lines used in a system planning study may range in size from 50 kV to 500 kV and may be networked or radial.

Electric transmission system planning methodology involves forecasting customer demand, identifying area reliability problems, evaluating possible mitigation options and selecting a solution that solves the area's transmission needs. Transmission system planning evaluates the transmission system reliability up to 15 years in the future. The planning effort considers transmission and non-transmission alternatives to resolve the reliability problem for a specified area. NWE's methodology is flexible and is intended to develop a plan that:

- Responds to customers needs;
- Is low cost (e.g., Total Present Value Revenue Requirement, Rate Impact, etc.);
- Considers non-transmission and transmission alternatives;
- Assesses future uncertainty and risk;
- Promotes NWE's commitment to protecting the environment;
- Includes input from the public and other interested parties;

² Demand-side resource, generation, interruptible load, etc.

- Provides adequate return to investors;
- Complements corporate goals and commitments;
- Meets FERC Standards and WECC Standards;
- Meets the Montana Public Service Commission expectations;
- Meets Regional and Sub-Regional planning requirements;
- Satisfies the requirements of the FERC Order 890; and
- Conforms to applicable state and national laws and regulations.

Goal and Scenario Definition

NWE uses scenario planning and not probabilistic planning for developing the electric transmission system plan. NWE may, however, use probabilistic assessment methods within a defined scenario to evaluate uncertainty. The design of the scenario is to "crystal ball" the future in order to identify conditions that stress the transmission system.

NWE will work with its Transmission Advisory Committee³ ("TRANSAC") to establish the goal of the transmission plan. The scenarios will be developed using this goal as a basis. A scenario will depict a specific condition such as summer peak load with maximum generation and exports out of the state. NWE's transmission system is exporting power most of the time since Montana has significantly more generation than load. It is important to note that a scenario should be designed to stress the transmission system under conditions that may cause inadequate transmission system performance to meet reliability criteria. Experience has shown that the transmission system is stressed when flows across it are heavy. However, experience has also shown that the transmission system may display problems under conditions that are less than maximum flows due to the way electrical equipment engages operation or ceases operation. Once a problem is found, solutions that mitigate the problem are defined and evaluated.

NWE's basic methodology is to define the base scenarios to study and then to develop uncertainty scenarios from these base scenarios. This methodology is described in more detail below.

Base Scenarios

Base case scenarios will be used to examine the transmission system under a variety of future assumptions for a specific period of time. These assumptions include, but are not limited to, the following:

- Load Forecast (e.g., study year)
- Load Condition to Study (e.g. season, peak load or light load, etc.)
- Generation Available (e.g., generation additions/changes)
- Generation Dispatch Conditions (e.g., how is the generation operated)

³ TRANSAC is an advisory stakeholder committee that meets regularly with NWE to provided input and comments during the planning stages of NWE's electric transmission system plan. Membership is open and communication is open and transparent. For more information visit NWE's Transmission Planning section on NWE's OASIS Website (http://www.oatioasis.com/NWMT/).

- Transmission System Elements Available (e.g., transmission element additions/changes)
- Transmission System Configuration (e.g., what elements are out-of-service)

Even though new interconnect projects follow FERC's defined interconnection methods, the study results from the new interconnect projects cannot be ignored in transmission system planning. The addition of new generation to NWE's transmission system can affect the flows throughout the system. Additional power flows from the new generation, and flow changes due to transmission system upgrades, if upgrades are required. NWE, with input from its TRANSAC, will consider scenarios including new generators with associated transmission or develop uncertainty scenarios that include this information.

Uncertainty Scenarios

The uncertainty scenarios are intended to recognize that the future, as assumed in the base scenarios, is not known. This uncertain future creates risk, which may be quantifiable or non-quantifiable. Risk may be expressed as a dollar cost or other impact. The base scenarios must make assumptions about future conditions, but the uncertainty scenario helps with understanding the risk associated with those assumptions. The purpose of the uncertainty scenarios is to develop information about the cost and electrical performance of base scenarios so that an informed decision about future transmission investments can be made.

Technical Study

The technical study is the second step in electric transmission system planning. It examines the reliability of NWE's electric transmission lines that move power around NWE's balancing area and between the bulk electric transmission system and the distribution system. NWE uses a sophisticated computer model (i.e., PSS/E) to simulate generator output, electrical flows over the transmission lines, electrical equipment action, customer loads and export (or import) path flows. The purpose of the technical study is to quantify transmission system performance by measuring the bus voltage, equipment loading, reactive power requirement, system frequency and other electrical parameters.

NWE does not conduct studies for every possible load and resource dispatch combination for the 8760 hours of the year. Instead, only the load and resource dispatch patterns that stress the transmission system are evaluated. The conditions that stress the transmission system are used in a computer simulation of the electrical system. The reliability of the local transmission system is evaluated with all transmission lines in service or with a variety of lines out of service. For each computer simulation run, the transmission system voltage, transmission line loading, reactive support and other parameters are

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⁴ Reliability includes adequacy and security considerations. Adequacy evaluates whether or not there is sufficient transmission capacity to serve the load without violating criteria. Security evaluates whether or not the transmission system response will meet appropriate criteria (voltage, thermal, frequency, reactive margin, etc.) after a transmission element(s) becomes unavailable for service (e.g., a forced outage of a transmission line).

measured and compared to specific reliability criteria⁵. If the reliability criteria are not met, then appropriate mitigation (transmission and non-transmission) is modeled in the basecase database and the computer model simulation is run again. This process continues until the reliability criteria are met. The mitigation measures could include enhancements to the transmission system, generation development, demand resource development or other alternatives.

A database is developed that includes technical data for generation, transmission lines, electrical system equipment and customer load levels and geographic distribution. NWE will consult with the TRANSAC in developing forecast data for transmission, generation and demand response resources. The basic methodologies for developing this forecast data are described below.

• Transmission: NWE will use the existing transmission infrastructure as a starting point. This data will be reviewed and any updates to the existing transmission data will be included in the basecase. Future new additions to the transmission system may or may not be included. If a new transmission project is under construction, then it will be included in the base case. Future new transmission additions not under construction will not be included in the initial basecase unless a prior planning study has accepted the project and NWE agrees to include it after discussing it with TRANSAC. These projects may be included in some of the base and/or uncertainty scenarios and not others. Other future new transmission additions will be considered as one of the mitigation options should transmission system reliability problems arise during the study.

New regional transmission projects that affect NWE's transmission will be included if the project is in Phase 2 of the WECC Three Phase Rating Process and NWE agrees to include it after discussing it with TRANSAC. These projects may be included in some of the base and/or uncertainty scenarios and not others.

• Generation: NWE will use the existing generation infrastructure as a starting point. This generation data will be reviewed and any updates or changes will be included in the basecase. Future generation additions, including generation from NWE's generation interconnect and transmission service request queue may be included. Since NWE currently has significantly more generation installed than load, proposed new generation additions may significantly change the transmission system configuration because of the mitigation requirements (i.e., transmission fixes) to connect and move power across NWE's transmission. The Transmission System Planning process cannot ignore this. NWE will review these potential new generation additions and their transmission fixes with TRANSAC and then consider including them into the base scenarios and/or uncertainty scenarios. It is likely that these new proposed projects might be included in some of the base scenarios and not others or may be included in the uncertainty scenarios only.

⁵ Federal Energy Regulatory Commission, NERC, WECC or NWE reliability criteria.

 Demand Response Resources: NWE will obtain demand response resource forecasts directly from the LSEs and customers within the balancing area. TRANSAC and NWE will review these forecasts and then consider including them in the basecase. The uncertainty scenarios may adjust these forecasts.

Using this database information, NWE will develop the **basecases** that are used to model the transmission system. NWE's base case also includes this data for the entire WECC region. The time frame that the base case data represents is for a very specific condition that may occur over the course of the year. Thus, defining the conditions for a base case involves defining the generation, transmission configuration and customer load levels that are the focus of the study. In order to study each hour of a year, 8760 different base cases could be developed (8760 hours = 8760 basecases). This is impractical. Transmission planning's purpose is to ensure transmission system reliability under all operating conditions, which means that the studies need focus only on the conditions that may stress the system. The following two examples describe stressed system conditions:

- Example 1: Montana load at peak load conditions, such as summer peak day, and high generation will stress the local area transmission system serving the local area load.
- Example 2: Montana load at light load conditions, such as the middle of the night, with high generation levels and high export levels will stress the high voltage transmission system.

The technical analyses will use different engineering studies to evaluate the system performance. These studies are designed to use different engineering perspective to ensure system reliability is maintained. These methods include, but are not limited to, the following:

- Steady-State Powerflow Analyses
- Post Transient Steady-State Powerflow Analyses (or Steady-State Post Fault Analysis)
- Transient Stability Analyses (or Dynamic Analyses)
- Fault Duty Analyses
- Reactive Margin Analyses

A study of the transmission system under static conditions is a steady state powerflow study, and a study over time⁶ is called a transient stability study. The steady state powerflow analysis is a static evaluation of a local area transmission system that

⁶ The PSS/E model automatically completes a transient stability study by running the computer model repeatedly over time and recording how the generation and transmission elements change over time as the result of an outage. A sequence of results is produced that depict how the generation and transmission system equipment responds to this outage condition. The time step must be very small to accurately capture transmission system changes because generation and load are matched instantaneously. For example, a dynamic study runs a powerflow simulation of the system, with progressive "real" time adjustments, every ¼ cycle or 0.00417 seconds. Thus to make a 5 second study, the program must be run 1200 times.

examines the transmission system under normal operating conditions with all lines in service and with single and creditable multiple transmission lines or elements out-ofservice (i.e., N-1, N-2, etc. conditions). Note that the "-1" in N-1 represents the number of transmission elements that are out of service. A transient stability study (i.e., a dynamic simulation study) evaluates the transmission system performance on a progressive time dependent basis. These studies evaluate credible outage events to determine if the transmission system will recover to acceptable steady-state operation after the outage. The studies include an assortment of outage events that are intended to provide a thorough test of the reliability of the transmission system. After a powerflow simulation is completed, a search of the simulation results for unacceptable thermal overload and voltage excursion is made. Unacceptable transmission system performance must be corrected by including transmission and non-transmission (e.g., demand-side resource, generation, etc.) fixes into a second simulation. Additional mitigation or fixes are included in the simulation until a valid solution is found. A valid solution is one that meets the reliability criteria describe below. Economic and system performance information for this scenario is identified and retained for comparative analysis between scenarios during the decision step.

The credible "worst case" single and multiple fault events must be simulated to determine if the transmission system will recover to acceptable steady-state operation. A dynamic simulation includes an assortment of outage events that are intended to provide a thorough test of the reliability of the transmission system.

Each scenario study must evaluate the effectiveness of existing Remedial Action Schemes ("RAS") within NWE balancing area. A RAS is used to maintain system reliability for voltage performance problems. These RAS include NWE's Acceleration Trend Relay ("ATR") device to trip generation at Colstrip for major events, the Bonneville Power Administration's RAS to directly trip the Miles City DC tie for certain 500 kV events west of Garrison and a RAS to trip the Hardin generation for certain 500 kV events. The Colstrip generation employs generator tripping for critical outage events on the 500 kV electric transmission system. The generator-tripping scheme is a computer-based relay called the ATR. This device monitors the generator speed and acceleration (real time), and digitally analyzes these quantities to determine when an unstable event is in progress. If an unstable event is in progress, the device determines the amount of generator tripping that is required to protect the electric transmission system from instability and unacceptable low-voltage swings caused by the event. The ATR then proceeds to trip the necessary number of generating units at Colstrip before the event causes instability problems to occur. To model the ATR in the study software requires special non-proprietary NWE software be used in conjunction with the PSS/E model.

In addition, as new generation is added to the existing generation sources, NWE must fully evaluate the impacts to the existing RAS operation and whether or not the new generation must be on a RAS. NWE may also consider an Overload Mitigation Scheme ("OMS") to control for thermal overloading. See the Criteria section for a more detailed discussion of the RAS and OMS use.

From these studies and analysis of the changes in system steady-state and transient voltage levels after the loss of a single line, multiple lines, or generating units; changes in the line and equipment thermal loading conditions; changes in Volt-Ampere reactive ("VAr") requirements (voltage support); and unacceptable frequency excursions are scrutinized. All relevant reliability criteria are applied in these evaluations. See the Criteria segment of this document for a discussion of NWE's criteria.

NWE will also conduct fault duty study and reactive margin studies as needed. A fault duty study is a study of electrical current interrupting devices (e.g., breakers) to ensure the device can open under maximum fault conditions. When a fault or short circuit occurs on a power line, the protective relay equipment detects the increased current (i.e., fault current) flowing in the line and signals the line's circuit breakers to open. When the circuit breakers open, they must be capable of interrupting the full fault current. The worst-case fault current is commonly referred to as the "fault-duty". A reactive margin study is a study to ensure that the transmission system has sufficient voltage control to maintain adequate voltage levels.

Decision

An objective of a system planning study is to evaluate the range of potential transmission and non-transmission (e.g., demand side management, generation, conservation, etc.) solutions within the technical study and then use the results from the base studies and the uncertainty studies to make an informed decision. The decision rule, which will be developed for each transmission plan as describe below, can include quantifiable results (e.g., cost) and non-quantifiable information (e.g., written discussion of an issue). NWE's decision rule may include, but is not limited to, the following information:

- Total present value of utility costs
- System performance statistics to measure customer impacts
- Environmental assessment and/or costs
- Reliability metrics
- Uncertainty and Risk assessment results
- Non-quantifiable assessment
- Provide consistent, documented process

The primary purpose of the decision rule is to provide descriptive information (e.g., costs, risks, etc.) about the system and mitigation needed to resolve the problems. This information can be ordered or weighted so that stakeholders can understand the differences between the scenarios and provide input to NWE. NWE management can then use this information and input to make an informed decision for future transmission investment to serve future network load and point-to-point requests. Once approved, the mitigation will be prioritized into NWE's 15-year business plan.



Reporting

The results of the transmission system plan will be reported and prioritized into NWE's 15-year business plan. Information from the transmission system plan will aid NWE management in this priority. It is NWE's intent to publish a formal report bi-annually, with the first report due early 2009.

Load Forecast Methodology

NWE will use a peak load forecast that is based on a 50% probability of being exceeded (i.e., 1 in 2 assumption). The forecast may be adjusted up to a 1 in 10 or 1 in 20 (i.e., 10% and 5% probability, respectively) to capture a heavy peak load conditions. NWE will develop its load forecast from two sources. First, pursuant to FERC MOD 016, NWE will obtain load forecasts from Load Serving Entities ("LSE") within the balancing area. A 1 in 2 (50% probability of being exceeded) and a 1 in 10 (10% probability of being exceeded) summer and winter peak load forecast from the LSEs within the balancing area will be used. The LSE's peak load forecasts will be summed, assuming they are time coincident, to calculate the balancing area load forecast. NWE's second source is a regression-based peak load forecast model that NWE has maintained over the years. The loads within NWE's balancing area are metered and tracked. That is, the loads are well defined. If the LSE and NWE load forecast results are significantly different, NWE will attempt to reconcile these differences. If NWE cannot reconcile these differences, NWE will choose which forecast to use in the study.

The balancing area peak load forecast will be adjusted to reflect demand response resource reductions, conservation reductions and other appropriate peak load modifying sources.

Once a balancing area load forecast is developed, this forecast is disaggregated to the load buses in NWE's balancing area. There are two types of load buses – (1) a load bus where the load does not change over time (e.g., a single large industrial load bus); and (2) a load bus where the load changes over time (e.g., residential load). NWE uses its knowledge of load characteristics along with regression analysis to extrapolate the individual load bus data in time. The load bus forecasts are summed and compared to the balancing area load forecast. If the two forecasts do not match, NWE will adjust the changing load bus forecasts until the two forecasts are the same.

WECC Annual Study Program

In addition to NWE's own transmission system planning study, NWE participates in the WECC Annual Study Program. This program examines the reliability of electric transmission lines that are instrumental in moving electricity across the NWE system from sources of supply inside and outside Montana to markets inside and outside Montana. These lines generally range in size from 100 kV through 500 kV. A detailed

simulation model⁷ is used for steady state and dynamic event analysis that assesses electric transmission stability before and after a loss of a critical electrical element (e.g., line).

Two types of study assessments are conducted - Operating Transfer Capability ("OTC") studies and Bulk System Planning Studies. The distinction between these studies is that the OTC study establishes the next season's maximum transfer capacity for selected electric transmission path and the planning studies evaluate the bulk transmission system's adequacy and security 2-10 years into the future. The Annual Study Program requires that each year approximately ten detailed studies be conducted to assess bulk electric transmission reliability. The mix of operating and planning studies varies each year.

When conducting a seasonal OTC study, NWE follows the WECC policy of using a critical outage for a load condition and generation pattern defined by WECC to establish the OTC that meets reliability criteria. The specific load and generation patterns may include heavy winter or summer loads with maximum thermal generation and critical hydro conditions and light spring loads with maximum generation. The outages that are of interest may include single or double line loss of the critical lines. After completing a study, NWE looks within its system and outside its system for unacceptable voltage concerns, overloaded electrical equipment and frequency excursion. The equipment includes, but is not limited to, generators, transmission lines, transformers, series capacitors, wave-traps, circuit switchers, and circuit breakers. Other electrical equipment on the system may limit the transfer of power through a system; therefore, they need to be considered when conducting studies. Voltage levels are reviewed to make sure that the steady state, post-fault and transient voltage performances comply with all criteria. NWE checks for unacceptable equipment thermal loading, voltage swings and positive damping after transient excursions on a system-wide basis. See the Criteria section of this document for criteria requirements.

OTC studies are conducted by adjusting the load and generation patterns in a computer simulation model (i.e., PSS/E) to maximize the loading on the electric transmission path (e.g., set of branches being assessed). The initial generation, load, and transmission data are taken from an appropriate WECC base case. Assessments must evaluate the effectiveness of the RAS in NWE's balancing area. These RAS include NWE's ATR device to trip the Colstrip generation for major events, the Bonneville Power Administration's RAS to directly trip the Miles City DC tie for certain 500 kV events west of Garrison and the Hardin generation RAS. Maximum loading on the path is achieved when the system performance for the most sensitive parameter, either steady state or transient, just meets the reliability criteria. This establishes the OTC for that path. Planned equipment changes and/or additions are allowed in the study.

The **Bulk System Planning Study** originates through the WECC System Review Work Group ("SRWG") annual planning program. The WECC study follows the same process

⁷ NWE models the WECC transmission system using the PTI PSS/E software. NWE base case data includes the 50 kV to 500 kV transmission system data.

as the OTC studies, except the season can range from 2 to 10 years in the future and may include proposed new facilities. The goal of the planning study is to examine the reliability of the future transmission system under prescribed seasonal loads, generation patterns, and various outage conditions and to identify appropriate upgrades and/or new facilities to maintain bulk system reliability into the future.

Economic Planning Study

Pursuant to FERC Order 890, stakeholders may request an Economic Planning Study. The purpose of FERC Order 890 Economic Planning Studies is to ensure that customers may request studies that evaluate potential upgrades or other investments that could reduce congestion or integrate new resources and loads on an aggregated or regional basis (e.g., wind developers), not to assign cost responsibility for those investments or otherwise determine whether they should be implemented. This is different than a proposed new generation interconnect study in that an interconnect study is to interconnect a new Generating Facility, or to increase the capacity of, or make a Material Modification to the operating characteristics of, an existing Generating Facility that is interconnected with the Transmission Provider's Transmission System.

A request for an Economic Planning Study may be confined to NWE's balancing area, in which case NWE would complete the study using the methodology, criteria and process described within this document. A request for an Economic Planning Study may be included as a scenario in NWE's biannual Transmission System Plan cycle if it is received in a time that would allow this inclusion. If the request is received at a different time, then NWE will process the request using methodology and process similar to the process described herein.

If a request for an Economic Planning Study expands beyond NWE's balancing area, then the request will require sub-regional or regional study process and NWE will coordinate this with the Northern Tier Transmission Group ("NTTG") or to WECC. NWE will coordinate and participate in their Economic Planning Study as required.

Criteria

NWE reliability criteria, NERC/WECC⁸ regional reliability criteria (hereafter called WECC Standards), FERC⁹ Standards and industry standards (e.g., IEEE Standards) are the basis for NWE transmission planning criteria. This section describes these criteria.

Reliability Criteria

Electric transmission reliability is concerned with the adequacy and security of the electric transmission system. Adequacy addresses whether or not there is enough transmission, and security is the ability of the transmission system to withstand contingencies (i.e., the loss of a single or multiple transmission elements).

- NWE Internal Reliability Criteria is a set of technical transmission reliability
 measures that have been established for the safe and reliable operation of NWE's
 transmission system.
- The FERC Standards and the WECC Standards set minimum performance standards for voltage excursions and voltage recovery after a credible outage event on the transmission system.

NWE uses these criteria in evaluating a change or addition to its electric transmission equipment and/or a change or addition to load or generation. NWE will use these reliability criteria as needed to fully evaluate the impacts to its electrical system of proposed lines, generation or loads. NWE augments these criteria with other standards such as, but not limited to, the ANSI and IEEE standards.

NWE planning ensures that any change that either directly or indirectly affects its transmission system will not materially reduce the reliability to existing customers. The NWE electric transmission system must remain dependable at all times so that it may provide reliable high quality service to customers.

NWE Internal Reliability Criteria

NWE Internal Reliability criteria are used for reliability performance evaluation of the electric transmission system. Steady state implies the condition on the transmission system before an outage, or after an outage and after switching occurs, regulators adjust, reactors or capacitors switch, and the electrical system has settled down (typically three minutes or more). This latter condition is also called post-fault reliability requirements.

NWE's criteria include a collection of ANSI standards as well as past and current practices, that when applied with experienced engineering judgment, lead to a reliable

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⁸ WECC is in the process of removing standards that duplicate the FERC Standards; so only the more stringent WECC criteria will remain.

⁹ The FERC Standards are implemented by NERC.

and economical electric transmission system. These criteria support the FERC Standards and WECC Reliability Criteria that disallow a blackout, voltage collapse, or cascading outages unless the initiating disturbance and corresponding impacts are confined to either a local network or a radial system. An individual project or customer load may require an enhanced reliability requirement.

NWE plans for a transmission system that provides acceptable voltage levels during system normal conditions and outage conditions. Areas of the NWE system that are served by radial transmission service are excluded from single contingency evaluation, due to economic considerations.

Steady State and Post Fault Voltage Criteria for 230 kV and Below

The steady state voltage criteria listed in the tables below are based on the assumption that all switching has taken place, all generators and transformer Load Tap Changer's ("LTC") have regulated voltages to set values, and capacitors or reactors are switched. The basis for the percent voltages is the designed operating voltage.

As shown in Table 1, the recommended upper voltage limit for a load-serving bus is 105% unless equipment rating dictates a different limit. NWE follows the limit as outlined in the American National Standards Institute (i.e., ANSI C84.1). It is possible that a load-serving bus voltage may exceed the tabled value if conditions allow a higher voltage without harm to NWE or customer equipment.

	Table 1
Maxim	num Upper Voltage Criterion
At Un	regulated Load-Serving Bus
	Upper Operating Limit
Voltages	105%

The allowable minimum percent voltage for any load-serving bus that is within a network configuration is shown in Table 2. It is possible that a load-serving bus voltage may fall below the tabled value if conditions allow a lower voltage without harm to NWE or customer equipment. This table will be applied on busses that are not part of the bulk electric system where bulk electric system reliability is not affected. Otherwise the FERC/NERC and WECC criteria are applied to the bulk electric system busses.

,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		ble 2	
Min	imum Allowal	ole Percent Voltage	2
At N'	WE Unregulat	ed Load-Serving B	us
Nominal Voltage	Existing System (N-0)	First Contingency (N-1)	Second Contingency (N-2)
230 kV and 161 kV	97%	95%	93%
115 kV and 100 kV	95%	93%	90%
69 kV and 50 kV	93%	93%	90%

Note:

- Percent voltage is measured from the nominal voltage.
- 2. The 50, 69 kV and 100 kV are not bulk electric system elements.

The minimum allowable percent voltage for a load serving bus that is on a radial transmission system for an event on the radial line must only meet the existing system performance (N-0) shown in Table 2. Any unacceptable voltage performance must be mitigated in accordance with the criteria described below. The use of a Remedial Action Scheme (RAS)¹⁰ will be evaluated on a case-by-case basis, with no assurance that NWE will accept or use a RAS. Table 2 assumes that all other methods to control voltage have been explored (such as capacitors, reactors, and line switching, etc.).

Steady State Voltage Criteria for 500 kV

The allowable operating voltage range for the 500 kV transmission system is 100% to 110% of nominal, or 500 to 550 kV. (It should be noted that the nominal rated voltage of all "500 kV" equipment is 525 kV; therefore the acceptable range of voltages for this portion of our system is 500-550 kV.)

General Minimum Equipment Specifications

Table 3 summarizes the MVA, voltage, current, BIL level, MCOV and interrupt ratings of equipment as applicable and associated grounding requirements. The general minimum specifications for NorthWestern Energy Transmission and Substation equipment are listed in the following table.

-

¹⁰ Also known as Special Protection System (SPS)

Та	ble 3					
Transmission and Substation Equip	ment: Ge	eneral M	linimum	Specific	ations	
	Nominal System Voltages - kV					
	230 kV	161 kV	115 kV	100 kV	69 kV	50 kV
MVA and Current Ratings *(1)	As Req'd	As Reg'd	As Reg'd	As Reg'd	As Reg'd	As Req'd
Equipment BIL (kV) *(2)	900	750	550	550	350	350
Maximum Design Voltage (kV) *(3)	242	169	121	121	72.5	72.5
Breaker Interrupt Current (kA)	40	40	40	40	40	40
Breaker and Switch Continuous Current (A) *(4)	1200	1200	1200	1200	1200	1200
Arrester Duty Rating/MCOV (kV) *(5)	172/140	120/98	90/70	90/70	54/42	39/31.
Substation Insulator Class	TR-304	TR-291	TR-286	TR-286	TR-216	TR-214
Transmission Line BIL, wood (kV) *(6)	1105	780	610	525	440	355
Transmission Line BIL, steel (kV) *(7)	1265	945	695	610	525	440

*Notes:

- 1. Project and equipment specific as required to avoid thermal overloads
- 2. 1050 kV BIL is also used on some 230 kV equipment
- 3. At least 5% over nominal
- 4. 2000 amp equipment is used in some applications
- 5. For effectively grounded systems
- 6. Insulator support hardware ungrounded
- 7. Insulator support hardware grounded

Transmission Equipment Rating and Loading

Transmission Conductors:

Transmission conductor continuous rating is based on 25°C (77°F) ambient air at 1.4 mph (2 ft/sec), 50°C conductor temperature rise, and 75°C (167°F) maximum operating temperature unless conditions dictate otherwise (i.e., some conductors and lines may be specifically designed for higher operating temperatures). This is Rate A in the powerflow base cases. Unacceptable conductor loading can be mitigated by system improvements or, in some cases, an Overload Mitigation Scheme ("OMS") that changes system conditions to mitigate the overload. The use of an OMS will be evaluated on a case-by-case basis, with no assurance that NWE will accept or use an OMS.

Transformers:

Transformer rating is based on the following:

 For standard service conditions (24 hour average ambient air temperature of 30°C or 86°F, or less), the continuous rating is 100% of the highest operational nameplate rating. This is Rate A in the load flow power case.

• For winter service conditions (24 hour ambient air temperature less than 0°C, or 32°F,) loading to 125% of the standard service condition rating may be allowed.

Unacceptable transformer loading can be mitigated by transformer replacement, system improvements or, in some cases, an OMS that changes system conditions to mitigate the overload. The use of an OMS will be evaluated on a case-by-case basis, with no assurance that NWE will accept or use of an OMS.

New Facility (Generation, Transmission, Load, or Line):

The primary goal when interconnecting a new facility to NWE's transmission system is to ensure that the configuration of the interconnection will not materially reduce the performance of the transmission system or the reliability of service to customers. A material reduction in reliability occurs when operation associated with a new facility or the interconnection itself precludes complying with NWE criteria, WECC criteria, FERC Standards or good utility practice. System reliability cannot be jeopardized as a result of connecting a new or up-graded facility. Steady state and transient electric transmission system performance must meet or exceed NWE, FERC and WECC performance criteria, and changes in fault duty cannot exceed equipment capability. Any unacceptable system performance (voltage, thermal, frequency, fault duty, PV/QV, power quality, etc.) must be mitigated prior to interconnection.

The addition of new generation to NWE transmission system, including induction machine generation, must not cause unacceptable voltage fluctuations (i.e., a flicker problem) or harmonics as the units operate or as the generators cycle on and off during marginal operating conditions. New generation connected to NWE's electric transmission system shall comply with the limits set by IEEE Standard 519. A high-speed dynamic responsive reactive device (e.g., STATCOM, Static Compensator) must be provided to protect against flicker unless it can be demonstrated that the new generation does not cause a flicker problem. Instead of a high-speed dynamic responsive device, it might be proven that a different solution, such as managing individual wind turbine generation starts through a master control system, solves the flicker problem.

At the Point of Interconnection, NWE requires an interconnection facility to be able to produce or absorb Reactive Power between 0.9 leading to 0.9 lagging power factor to meet voltage schedules set by NWE within a range of 0.95 to 1.05 of nominal.

Induction generators are assumed to have operational characteristics either through internal or external capabilities to operate throughout a power factor range of 0.95 leading to 0.95 lagging at the Point of Interconnection.

Remedial Action Scheme (RAS) and Overload Mitigation Scheme (OMS) Application

NWE may consider a RAS or an OMS application to protect the electric transmission system against certain types of events, but each application will be evaluated on a case-by-case basis with no assurance that a RAS or an OMS application will be acceptable.

 An OMS may be used to mitigate a thermal overload that is less than the thermal rating of a system element by tripping or by generator run-back.

- This may be an appropriate application for an overload that results from a single (or multiple) contingency outage event. The OMS may be manual (with a response time not greater than 30 minutes) or automated (with a faster response time). Typically, response time for an OMS application is measured in tenths of seconds to minutes. Generally, an OMS can be thought of as a scheme that can be backed up by relay operation or operator intervention if necessary. An OMS will not be considered as acceptable mitigation for system element overload if its failure to operate properly could lead to widespread outages on the Bulk Electric System.
- A RAS may be used for certain single and multiple contingency outage events that result in unacceptable electric system reliability performance that is not related to minor thermal overloading and that requires a more immediate response (e.g., unacceptable transient stability performance). A RAS must be an automated response to the outage. Typically, response time for a RAS application is measured in cycles or at most a few seconds. While the ranges of expected response times may overlap, there is a distinctly different character to a RAS. It may be expected to meet a higher reliability standard, depending on the application. There is no expectation that a transmission system operator could intervene if the RAS were to fail to operate. Any RAS application must be redundant and meet WECC system planning criteria. NWE will submit any RAS application that may be proposed to the WECC RASRS for their approval if the RAS failure could lead to widespread outages on the Bulk Electric System of the Western Interconnection. If a RAS does not receive the approval of the RASRS, NWE will not use it.

NWE's criterion for the use of a RAS or an OMS is consistent with the performance requirements of existing facilities connected to NWE transmission system. NWE's criterion is stated below:

- All lines and equipment in service:
 - OMS application with Conditional Firm Transmission Service: NWE may consider an OMS for thermal overloads with all lines and equipment in service for generation resources receiving Energy Resource Interconnection Service ("ERIS") and submitting an application for Conditional Firm Service if the overload condition is well-defined, is not acute (i.e., study results do not exceed 125% of transformer or 100% of line ratings without mitigation for one or two elements), and is isolated to the local area transmission. The ability to control the overload must be simple, and the OMS must completely eliminate the overload in a time specified by NWE with no impact to third party customers. An assessment will be made on a case-by-case basis with no assurance that an OMS will be acceptable. The equipment to control the generation output must be automated, redundant (with no common point of failure), set to execute mitigation procedure below 100% of thermal capability as specified by NWE, and NWE must also have automated control of a breaker that can be used to trip the facility (or a sufficient portion of the

facility) off-line to eliminate the overload completely should the redundant control equipment fail to perform as designed.

- N-1 Outage: For single contingency (N-1) conditions with a new facility (i.e., generation, transmission, load, line, etc.) connected, unacceptable system performance must be mitigated.
 - N-1 RAS Application: Any RAS application to mitigate for an N-1 outage should be comparable to other RAS applications on NWE's system. NWE has not had a RAS operation from its Acceleration Trend Relay ("ATR") at Colstrip caused by any N-1 line outage. Studies show, however, that the current ATR design may call for RAS unit-tripping under high Colstrip generation levels and high transmission loading conditions coupled with a single 500 kV three-phase line fault. A three-phase line fault has a very low probability of occurrence (there has never been a three-phase fault on the Colstrip 500 kV system). NWE may consider a RAS for an N-1 three-phase line fault, but this will be evaluated on a case-by-case basis with no assurance that the RAS application will be acceptable. NWE will not consider a RAS application as an acceptable mitigation for any N-1 condition caused by anything other than a three-phase fault (e.g., no fault, single-phase outage, two-phase outage, phase-to-phase outage, etc.). Any RAS application must be redundant and meet FERC/NERC/WECC system planning criteria. NWE will require that the WECC Remedial Action Scheme Reliability Subcommittee ("RASRS") approve any RAS application that may cause widespread outages if the RAS fails to perform as designed.
 - N-1 OMS application for line overloads: Using an OMS may be acceptable to mitigate (i.e., reduce overload) for a thermal overload condition caused by a single contingency. Each overload situation will be evaluated on a case-by-case basis with no assurance that NWE will choose to apply an OMS instead of system changes or enhancement. In all instances, an OMS must:
 - Limit loading to below 100% of rated capacity;
 - Allow no accelerated loss of life, or degradation of utility equipment per accepted industry standards and/or good utility practice;
 - Maintain a safe system;
 - Limit conductor loading to not exceed the conductor's maximum design.
 - N-1 OMS application for transformer overloads: Using an OMS may be acceptable to mitigate (i.e., reduce the overload) for a transformer thermal overload condition caused by the loss of a single system element (i.e., line, parallel transformer, etc.). Using an OMS for transformer overloads may be applied if the overload does not exceed 125% of transformer per unit rating. For transformer overloads greater than 125%, an OMS is unacceptable mitigation. In all instances, an OMS must:
 - Limit the overload duration to less than 30 minutes;

- Maintain a safe system;
- Allow no accelerated loss of life, or degradation of utility equipment per accepted industry standards and/or good utility practice.
- N-2 (double or greater) Outage: NWE may accept an OMS for thermal overloads or a RAS as the primary mitigation for an N-2 (or greater) outage condition. Each application would be evaluated on a case-by-case basis with no assurance that NWE will choose to utilize an OMS or RAS scheme instead of system changes or enhancement. Any application may be required to be redundant and must meet FERC Standards and WECC criteria.

Any RAS application must be redundant and meet WECC system planning criteria. NWE will require that the WECC RASRS approve any RAS application that may cause widespread outages if the RAS fails to perform as designed.

NWE may consider an OMS for a credible N-2 (or greater) outage condition. Each OMS application will be evaluated on a case-by-case basis with no assurance that the OMS application will be acceptable. Any N-2 OMS application may be required to be redundant.

- RAS Application for a Stuck Breaker: NWE may consider a RAS application to mitigate for a stuck breaker contingency. Each RAS application will be evaluated on a case-by-case basis with no assurance that the RAS application will be acceptable. Any RAS application must be redundant and meet WECC system planning criteria. NWE will require that the WECC RASRS approve any RAS application that may cause widespread outages if the RAS fails to perform as designed.
- RAS Application for a Transformer Outage: NWE may consider a RAS application
 to mitigate for a transformer outage. However, it is recognized and may not be
 acceptable because application of a RAS for the catastrophic loss of a transformer
 could require the local system operations to be reduced until a suitable transformer is
 installed. Each RAS application will be evaluated on a case-by-case basis with no
 assurance that the RAS application will be acceptable. Any RAS application must be
 redundant and meet WECC system planning criteria. NWE will require that the
 WECC RASRS approve any RAS application.

Voltage Ride Through

NWE will follow FERC and WECC high and low voltage ride through criteria as appropriate. Under certain circumstances, NWE may require the generation to trip offline to maintain system reliability instead of riding through the event.

Harmonics

Because some generation facilities, such as wind generation, may include large capacitor banks to supply adequate voltage support, and power electronic installations to accommodate the induction generators that are used for such facilities, and because both

such facilities may introduce harmonic currents either due to resonances at harmonic frequencies or through inverter circuitry that is capable of introducing harmonic currents, NWE may require a study be conducted to evaluate the potential for unacceptable levels of harmonic currents that may be introduced by the facility. This study should be performed along with the Facilities Study for the project. NWE will supply the system Thevenin equivalent impedance of its power system at the Point of Interconnection for the purpose of completing this study. This can be used to verify that no harmonic of the system frequency will be above acceptable levels [see IEEE standard 519-1992 and ANSI standard C84.1-1989]. The project will be required to mitigate any harmonics levels outside of acceptable limits.

Subsynchronous Resonance

The 500 kV transmission lines from Colstrip to Broadview to Garrison (and to the west) are series compensated. For this reason, the addition of a new generation project may require additional study to evaluate the exposure of each generator connected directly to or near this system. A Subsynchronous Resonance ("SSR") study will need to be commissioned by the various project sponsors to evaluate generator risk, not only for the new project, but also for all generators currently connected to NWE's electric transmission system. NWE welcomes the opportunity to participate in the SSR studies.

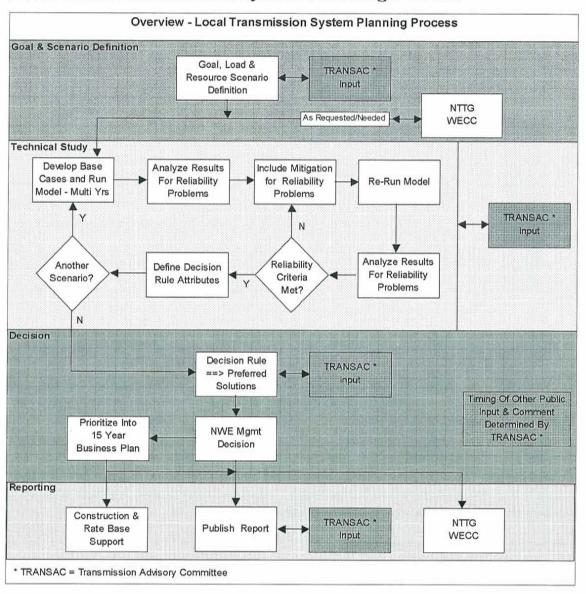
FERC Standard Requirements and WECC Reliability Criteria

The FERC Standards and the WECC Reliability Criteria are used to evaluate NWE's Bulk Electric System performance under steady state and transient stability and the recovery performance of NWE's transmission system. These criteria apply to all of NWE's bulk electric transmission lines. See the latest standards posted on the NERC or WECC websites at http://standards.nerc.net and http://www.wecc.biz.

Process Detail

NWE's local transmission system planning process is depicted in the following flowchart.

NWE Local Transmission System Planning Process



NWE will follow a biannual cycle to complete the above process. This process will be used to develop a 15-year electric transmission system plan. The methodology steps (i.e., scenario definition, technical study, decision and reporting) are weaved together by this process to produce NWE's electric transmission system plan.

Timeline

The typical timeline for NWE's two-year planning process cycle is shown in the following table.

			Data Collection To Include In Study			
	Quarter	Planning Steps	Open	Optional	Outside	
Prior Cycle	Qtr 5					
	Qtr 6					
rior	Qtr 7		×			
п.	Qtr 8		×			
	Qtr 1	Goal & Scenario Definitions	×			
Service of the servic	Qtr 2	Technical Study		x		
	Qtr 3			×		
emonto	Qtr 4				×	
Columbia 18	Qtr 5				х	
	Qtr 6				х	
	Qtr 7	Decision			x	
	Qtr 8	Reporting			×	

This timeline displays the approximate time dedicated to each of the planning steps and time when forecast data will be collected. Data that is collected will fall into one of three time periods for inclusion into NWE's planning process - "Open", "Optional" or "Outside". All data collected during the Open time period will be included in the study assuming the data is complete. Data obtained during the Optional time period may or may not be included in the study if it is not complete or the Technical Study has progressed to a point where including this information is not practical. NWE will consult with TRANSAC in making this determination. Forecast data will be collected for a 15 year period. Data collected during the Closed time period of the biannual cycle will be compared to the data used in the technical analysis and any notable changes will be discussed in the transmission system planning report.

Goal and Scenario Definition

NWE will work with TRANSAC to establish the goal of the transmission plan. This goal should support the various stakeholder interests. The scenarios will be developed using this goal as a basis.

Armed with this goal, NWE will define the planning scenarios with input from TRANSAC. A scenario will depict a specific condition such as the peak summer load, maximum balancing area generation and maximum export to the northwest. This scenario represents a "snapshot" in time that is to be studied. Since there are a large

number of combinations of load, generation and export/import conditions, careful consideration must be given to design each scenario to depict a future load and generation dispatch pattern that stresses the transmission system. Transmission system reliability planning is about ensuring the transmission system remains reliable under all operating conditions.

Varying the amount, type and location of generation, balancing area load level and NWE export/import conditions are important in defining a scenario. Defining a scenario can include, but is not limited to, the following:

- Different types of generation to determine how generation response to outage conditions
- Generation location and magnitude to determine transmission stress
- · Higher generation levels to cause more power to be exported out of the balancing area
- Lower generation levels with high imports from the east moving to the northwest to stress import paths
- Higher balancing area load to stress the local area transmission used for load service
- Lower the balancing area load levels with high generation to stress the high voltage transmission

As can be seen in the preceding flowchart, NWE's process includes input from NWE's advisory committee, TRANSAC, in defining the scenarios. The TRANSAC will provide input into NWE transmission planning process pursuant to FERC Order 890 Transparency requirements. Information regarding NWE's TRANSAC can be found on NWE's OASIS Website at http://www.oatioasis.com/NWMT/ under the Transmission Planning tab.

Technical Study

Once the scenarios are defined, the technical study will begin by developing a base case that specifies the modeling information for the scenario condition. Each scenario may include several base cases to span the 15-year study horizon. For example, to study the summer peaks in 2010 and 2015 requires two distinct base cases that reflect the load, generation and transmission line and equipment changes and additions for the specific year. Developing a base case depicting the scenario is critical and can take a significant amount of work and time to develop. A 15-year study for a scenario may actually include only three base cases representing years 5, 10 and 15. These base cases will differ by the load growth, generation and transmission assumptions.

Once a base case is built, running the computer software to simulate the interactions between load, generation and transmission that instant in time provides the engineering statistics to evaluate transmission system performance. The transmission system performance (voltage, thermal, etc) is analyzed to identify whether or not reliability requirements have been met. If inadequate performance is observed, a mitigation measure (e.g., transmission or non-transmission) is defined, and the base case is modified to include the mitigation. The simulation is repeated and system performance is compared to reliability requirements. This circular process is repeated until the system

performance meets or exceeds reliability requirements. Note, that at the conclusion of the study only a single mitigation solution will be defined and implemented, so once a mitigation measure is defined for a scenario, it must be included in all scenarios to ensure that it works for all scenarios.

The results of the above process yield a valid plan from which various statistics can be defined and included in a decision rule. NWE's TRANSAC will help define the decision rule attributes. The decision rule attributes can include, but are not limited to, the following:

- Total present value of utility costs
- System performance statistics
- Environmental assessment and/or costs
- Reliability metrics
- Non-quantifiable assessment

Decision

Information from the base case scenarios and associated risk scenarios will establish a set of descriptive system performance information for each scenario. NWE will seek input from the TRANSAC in identifying the specific attributes to include in the decision. This information will be applied into a decision rule to describe each scenario's positive and negative aspects. The planning process will use quantifiable and non-quantifiable descriptors to describe the plan. One logical organization would be to develop a matrix that has attributes listed down the left column and the scenario and underlying mitigation across the top two rows. Each cell would provide a discussion or assessment for that scenario's attribute.

The primary purpose of the decision rule is to provide information about the system problem and mitigation to resolve the problem. NWE management can then use this information to make an informed decision for future transmission investment to serve future network load and point-to-point requests. Once approved, the mitigation will be prioritized into NWE's 15-year business plan.

Reporting

NWE will develop a report for the above information. This report will describe the scenarios, technical studies, decision rule attributes and how the plan was developed. With the aid of TRANAC, NWE will make every attempt to clearly describe the methodology, criteria, and process that clarify how the transmission plan was developed.

Regional & Sub Regional Participation

NWE's participation in regional and sub regional planning activities will be broad, ranging from providing data to participating in studies and committees. NWE electric transmission system data, assumptions and plan will be shared with interconnected transmission systems, sub regions and region entities. NWE's base case data and NWE

electric transmission system plan will be provided to the interconnect transmission system when appropriate.

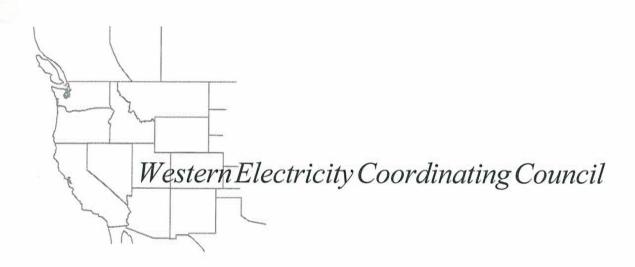
NWE provides its transmission system plan's data and assumptions to sub-regional and regional committees¹¹ that are responsible for building databases and then using this database for load and resource assessments and for operating and planning reliability studies. This is an annual process that requires NWE to provide basic transmission data, balancing area load forecast and generation information to be shared and included in the databases used by regional and sub-regional planning entities. NWE will participate in these forums as appropriate.

NWE's will provide its electric transmission system plan to WECC, Northern Tier Transmission Group ("NTTG"), and other sub-regional entities as appropriate. In the sub-regional context, NWE is an active member of NTTG. NWE will submit its data, assumptions and transmission plan to NTTG as required for inclusion in the sub-regional transmission plan. NWE will actively participate in the NTTG planning process to ensure data and assumptions are represented in the NTTG sub-regional plan. Once NTTG's sub-regional plan is developed, NTTG will coordinate its plan with other subregional entities and with WECC. In the region, NWE's plan will coordinate through the NTTG sub-regional plan to the WECC regional plan. When appropriate NWE will provide its transmission plan information to WECC. NTTG's plan will be shared and coordinated within the WECC plan with other WECC sub-regional plans. NWE will participate in sub-regional and regional transmission planning studies as appropriate to ensure data and assumptions are coordinated. These studies may be focused on integrating new transmission line(s) into the regional transmission network or a broad planning study of regional or sub-regional transmission needs. NWE's participation in these studies will be guided by the intent of the study and how NWE's electric transmission system might be affected.

NWE will also participate in regional or sub-regional studies to identify enhancements that could relieve "significant and recurring" congestion. In the past NWE participated in Northwest Power Pool, RMATS and WECC studies that focused on a broader footprint than NWE's balancing area. In the future, NWE will work closely with the NTTG and WECC process to identify congestion.

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¹¹ For example: WECC System Review Work Group (SRWG), WECC LRS Subcommittee, and Northern Tier Transmission Group Planning Committee, etc.



OVERVIEW OF POLICIES AND PROCEDURES FOR REGIONAL PLANNING PROJECT REVIEW, PROJECT RATING REVIEW, AND PROGRESS REPORTS

REVISED

April 2005

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OVERVIEW

POLICIES AND PROCEDURES FOR REGIONAL PLANNING PROJECT REVIEW, PROJECT RATING REVIEW, AND PROGRESS REPORTS

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1.0 Introduction

The Policies and Procedures for Regional Planning Project Review, Project Rating Review, and Progress Reports address the following purposes:

- Provide procedures for WECC members and others to report on planned projects and to work together to expand the interconnected system capacity according to member and stakeholder needs;
- Provide project sponsors with an industry agreed procedure, when completed, can be used to demonstrate regional planning has been performed for proposed projects as may be required to obtain required regulatory approvals;
- Provide the policies and procedures for notification and reliability assessment requirements related to projects planned within the WECC electric system;
- 4. Provide agreed upon methods applicable to rating of transmission facilities;
- 5. To ensure reliable and coordinated integration of existing and new projects such that the use of the system is maximized for all participants.

These Policies and Procedures are comprised of three WECC processes:

1. WECC Regional Planning Project Review;

This is a process intended to inform others of the opportunity to participate in or review a project, and to solicit participation. It is intended to avoid duplicate projects and allow a new project to integrate others needs by mutual agreement.

2. WECC Project Rating Review;

This is a process intended to ensure that new projects are integrated into the existing system with a rating while recognizing protected ratings of other facilities.

3. WECC Progress Reports

A process by which project sponsors report potential significant additions and changes to the interconnected system and WECC members are provided the opportunity to review and comment on these additions or changes.

While each of these processes function separately, for significant projects these processes are interrelated and support each other. For example, the Progress Reports process is used for reporting on all projects and also support completion of reporting on regional planning and project rating for significant projects.

2.0 Process Outline

The policies, guidelines, planning process, scenario examples, and study methodology presented in this document are intended to provide guidance to members on the process of planning and placing in service a project as well as to outline member responsibilities with regard to this process. Specifically, this document has been developed to establish the following, for projects:

- A procedure for reviewing project conformity with WECC's role for coordinating regional planning;
- 2. Guidelines to demonstrate that regional needs and efficiencies are considered;
- 3. A consistent and predictable process for planning (who does what, when, etc.) that is well understood and is accepted as standard practice in WECC;
- 4. Consistent methods for determining and demonstrating project ratings in accordance with NERC/WECC Planning Standards;
- 5. An Accepted Rating that has been reviewed by the WECC membership;
- 6. Allows for negotiations to resolve capacity allocation issues between parties; and;
- 7. A consistent and effective means for resolving disputes over capacity allocation issues should negotiations fail.

The sequencing of Regional Planning and Project Rating processes that the project sponsor normally should follow are shown in Figure 1

3.0 The WECC Regional Planning Project Review

The Regional Planning Review Process encompasses the initial development phase of a project in which regional interest is expressed. The Process addresses how transmission project sponsors should work and interact with other parties when developing a project that has or may have a significant regional benefit or impact. Through this process, WECC members cooperate to identify transmission expansion projects that may be beneficial to the region. By following this process, project sponsors may also address certain issues related to regulatory approval of their projects.

The Regional Planning Review Process should begin as soon as possible and involve all interested project participants. Although it will vary, this phase of the process should start when interested project participants are devising their individual and collective transmission needs. This phase is completed when PCC has made a final determination regarding the project's conformity with the WECC Regional Planning Guidelines.

4.0 The WECC Procedure for Project Rating Review

The purpose of the Procedure for Project Rating Review is to provide a formal process for project sponsors to attain a WECC Accepted Rating and demonstrate how their project will meet the NERC/WECC Planning Standards. This three-phase process addresses planned new facility additions and upgrades or the re-rating of existing facilities, requiring coordination through a review group comprised of the project sponsors and representatives of other systems which may be affected by the project. Section 1.2 of the Procedure for Project Rating Review explains which projects must undergo the three-phase rating process. At the completion of this process, an Accepted Rating is granted by WECC, which affords the project sponsor some protection against erosion of established capacity of this facility when further expansion of the interconnection is proposed or new limitations are discovered.

The Procedure for Project Rating Review is divided into three separate phases. Phase 1 is conducted by the project sponsor and is initiated when the project sponsor submits a report through the WECC Progress Report process or when a formal letter of notification is provided to the PCC and Technical Studies Subcommittee (TSS). Following such notification the project will be included in the next publication of the WECC Significant Additions Report. During Phase 1, the project sponsor is to conduct sufficient studies to demonstrate the proposed non-simultaneous rating of the project and prepares a Comprehensive Progress Report documenting study results and describing project details including a preliminary plan of service. Known simultaneous relationships should also be addressed in the Comprehensive Progress Report. In general, the acceptance of the Comprehensive Progress Report signals the completion of Phase 1, at which time the project is granted a Planned Rating.

Phase 2 encompasses a review of the project's plan of service by a Project Review Group, comprised of interested WECC members. During this phase the Project's Planned Rating is validated and the simultaneous transfer capability effects and the impact of the project on neighboring transmission systems are further assessed. The project sponsor and the Project Review Group must document all the studies and findings in a report called Project Review Group Phase 2 Rating Report. Phase 2 is completed when the Phase 2 Rating Report is accepted and the project is granted an "Accepted Rating."

Phase 3 is the last part of the Project Rating Review Process. Phase 3 is a monitoring phase where major changes in assumptions and conditions are evaluated to assure the "Accepted Rating" is maintained. Phase 3 is completed when the project is placed into service.

5.0 Progress Report

The WECC Progress Report Policies and Procedures provide the policies and procedures for notification and reliability assessment requirements related to projects planned within the WECC electric system. The intent of these policies and procedures are to encompass all generation and transmission projects that may have a significant impact on the reliability of the WECC interconnected electric system. All projects are required to adhere to the WECC Progress Report Policies and Procedures to assure that all WECC members appropriately present those projects not seeking a regional review or an Accepted Rating for peer review..

Projects subject to these policies and procedures include generation projects 200 MW or greater connected to the transmission system through step-up transformers, all new and upgraded transmission facilities with voltage levels over 200 kV or any facilities that may have a significant impact on the reliability of the WECC interconnected electric system. In the context of these policies and procedures, generation projects are to include, but are not limited to, new generation plants, generation repower or upgrades that may significantly alter the operation of the generation facilities. Transmission projects are to include, but are not limited to, new transmission facilities, transmission re-designs or upgrades, permanent removal of existing transmission facilities, or other changes (e.g. operating procedures) that may significantly alter the operation of the transmission facilities.

In general, these WECC Progress Report Policies and Procedures require the following to be submitted and/or completed during the planning of a project.

- Initial Progress Report
- Comprehensive Progress Report
- Supplemental Progress Report
- Review of Progress Reports By All TSS Members
- Informal Reports Presented At TSS Meetings

A Project Rating Report is optional because it is required only if a project desires an Accepted Rating and the Comprehensive Progress Report does not fulfill the requirement. It is required for the completion of Phase 2 of the Project Rating Review.

Approved by Planning Coordination Committee	March 3, 2005		
Approved by Board of Directors	April 6, 2005		

Regional Planning and Project Rating Pro Figure 1

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Process	seessment, redject neview	The same	. T.
Rafino Review Process	Phase 1	Phase 2	Phase 3
	Proposed Rating	Planned Rating	Accepted Rating
Progress Reports	Progress Reports Are R	Progress Reports Are Required Throughout the Entire Planning Process	nning Process

- 1. "Proposed Rating" used at the initiation and throughout Phase I of the Project Rating Review Process
- "Planned Rating" is the final rating at the conclusion of Phase I of the Project Rating Review Process and used throughout Phase 2 of the Project Rating Review Process
- "Accepted Rating" is the final rating at the conclusion of Phase 2 of the Project Rating Review Process and is also the rating that is used when the Project is placed in-service 3

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Appendix A

Definitions

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Definitions

Accepted Rating - A project rating that has been reviewed and accepted by WECC members. This rating is granted by WECC at the conclusion of reviewed planning studies and will be the rating of the project when it is put in service, if it is built in accordance with Plan of Service specified in the Phase 2 Rating Report. This is a comprehensive rating including both the simultaneous and non-simultaneous transfer capabilities.

Adversely Impact Transfer Capability - Adversely impact transfer capability means the reduction of either the Simultaneous or Non-simultaneous Transfer Capability. A new project causes a significant and verifiable adverse impact that needs to be mitigated if it reduces the transfer capability of a rated Project in a Benchmark Case comparison.

Benchmark Case - Case(s) that model the existing system (including appropriate recognition of other projects in the Rating Process) in the timeframe of new project and show the maximum transfer capabilities (e.g. the Existing or Accepted Rating) of existing paths that may interact with new project.

Comparison Cases - Cases with the new Project showing range of desired operation of new project and illustrating whether or not there are impacts or interaction with existing projects.

Existing Rating - Transmission path ratings that were known and used in operation as of January 1, 1994.

Non-Simultaneous Transfer Capability (or Limit) - The capability or capacity of a transmission circuit or path, in megawatts, to transfer power reliably and in accordance with prescribed Reliability Criteria independent of concurrent flows on other circuits or paths. It is normally determined with all potentially interacting circuits or paths loaded below the levels at which limitations are observed.

Other Rating – A transmission path rating, either proposed or planned, that is not an Accepted or Existing Rating.

Operating Transfer Capability (OTC) - The capability or capacity of a transmission circuit or path, in megawatts, to transfer power reliably on a path for the anticipated operating conditions for a season.

Path – In the context of the Procedures for Project Rating Review, a path is defined as a facility or facilities, between systems or internal to a system, for which schedules and/or actual flows can be monitored for reliability purposes. Facilities in a path may originate and terminate at the same point (substation or generating station) or at different points. Two or more individual paths can be combined into a single path for rating purposes, although they may be separate scheduling paths. Paths are also often called cutplanes.

Planned Rating - The tentative rating assigned to a project that is in Phase 2 of the rating process.

Plan of Service - The complete set of facilities, remedial actions, and operating procedures proposed by a sponsor for a particular project, together with their in-service dates.

¹ WECC's three-phase Accepted Rating Process was implemented after January 1, 1994

Project - A project is defined as a new generator or transmission facility or a change in rating of an existing generator or path through facility additions, facility upgrades, facility retirements or the rerating of existing facilities.

Proposed Rating - This is a preliminary rating proposed by a project sponsor.

Rating Process- The three phase process described in the Procedures For Project Rating Review.

Reliability Criteria - Western Electric Coordinating Council Reliability Criteria

Simultaneous Transfer Capability (or Limit) - The capability or capacity of a transmission circuit or path, in megawatts, to transfer power reliably and in accordance with prescribed Reliability Criteria in concert with other interacting paths, circuits, or generators. It is normally defined by its interactive relationship in the form of nomograms (parametric functions) with the flows on other transfer paths or circuits or the outputs of generators.

PROCEDURES FOR REGIONAL PLANNING

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PROCEDURES FOR REGIONAL PLANNING

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1.0 Introduction and Purpose

This Process identifies how transmission project sponsors should work and interact with their peers when developing a transmission project in which regional interest is expressed. The purpose of the Regional Planning Review Process is to:

- 1. Foster the development of a broad regional or subregional planning perspective among all stakeholders in the planning process;
- Promote and encourage a more efficient use and development of the region's or subregion's existing and future facilities to enhance interconnected system operation;
- Ensure that all relevant regional or subregional planning issues are considered during the planning of transmission projects with regional or subregional significance;
- 4. Provide procedures and guidelines for coordinated regional and subregional planning;
- 5. Involve Member Representatives, member executives, regulators, existing planning bodies, environmental groups, land use groups, and other non-utility interest groups in the process;
- 6. Allow stakeholders to identify opportunities for improved regional transmission efficiencies and make recommendations to achieve them;
- 7. Provide a voluntary dispute resolution procedure.

The Planning Coordination Committee (PCC) has the responsibility for oversight and review of the Regional Planning Review Process.

2.0 Regional Planning Guidelines

The Regional Planning Project Report, prepared by the project sponsor, will describe how the project sponsor addresses the following guidelines:

- 1. Take multiple project needs and plans into account, including identified utilities' and nonutilities' future needs, environmental and other stakeholder interests;
- 2. Cooperate with others to look beyond specific end points of the sponsors' project to identify broader regional and subregional needs or opportunities;
- Address the efficient use of transmission corridors (e.g., rights-of-ways, new projects, optimal line voltage, upgrades, etc.);
- 4. Identify and show how the project improves efficient use of, or impacts existing and planned resources of the region (e.g., benefits and impacts, transmission constraint mitigation);
- 5. Cooperate with Regional Planning Review Group members in determining the benefits and impacts due to the project;
- 6. Identify transmission physical and operational constraints resulting from the project or that are removed by the project;
- 7. Coordinate project plans with and seek input from all interested members, subregional planning groups, power pools, and region-wide planning group(s);

- Coordinate project plans with and seek input from other stakeholders including utilities, independent power producers, environmental and land use groups, regulators, and other stakeholders that may have an interest;
- 9. Review the possibility of using the existing system, upgrades or reasonable alternatives to the project to meet the need (including non-transmission alternatives where appropriate);
- Indicate that the sponsor's evaluation of the project has takent into account costs and benefits of the project compared with reasonable alternatives;
- Coordinate with potentially parallel or competing projects and consolidate projects where practicable.

3.0 WECC Regional Planning Project Review Process

3.1. Initiating the Process

Sponsors of a project should start the Regional Planning Project Review Process when a project is in the conceptual level of project development. At the earliest possible time, the project sponsor should notify PCC and TSS members of their desire to initiate the Regional Planning Project Review Process. Notifications should be made prior to submittal of project data for the WECC "Existing Generation and Significant Additions and Changes to System Facilities" (Significant Additions) report. The sponsors of a project shall notify the PCC of the purpose of the project.

The process may also be initiated by PCC determining that regional interest has been expressed or at the request of a member. PCC will maintain a list of projects under consideration by members that are not yet reported in the Significant Additions report so that PCC may determine if regional interest has been expressed.

Upon initiation of the review process, the project sponsor shall invite members to join a Regional Planning Review Group. A project sponsor will form a Regional Planning Review Group when other members indicate interest in participating in or reviewing a project. The purpose of the Regional Planning Review Group is to identify opportunities to incorporate multiple interests and multiple needs into a single project.

3.2. During the Process

The project sponsor, in coordination with the Regional Planning Review Group, will prepare a Regional Planning Project Report indicating how the project conforms or plans to conform to each of the Regional Planning Guidelines. In reviewing proposed projects relative to the Regional Planning Guidelines, the PCC members, through the Regional Planning Review Group may request that project sponsors perform additional studies or provide their own studies to the Regional Planning Review Group and may recommend the evaluation of alternatives or options that may provide greater regional benefits. Performances of the analyses and responses to PCC requests for information will remain the responsibility of the sponsors. The sponsor shall submit this report to PCC and TSS.

3.3. Completing the Process

At the conclusion of the Regional Planning Review Group's work, the project sponsor will prepare a Regional Planning Project Report to document that it has completed the WECC Regional Planning Project Review Process and met the Guidelines of this Process.

The project sponsor will submit the Regional Planning Project Report to PCC for 30-day review and comment on the conformity with the Regional Planning Guidelines. When comments from this review are addressed, the PCC Chair will notify the Project Sponsor, PCC, and TSS of the completion of the Regional Planning Project Review for the project.

Approved by Planning Coordination Committee	March 3, 2005
Approved by Board of Directors	April 6, 2005

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1.0 Introduction

This document has been developed to establish consistent methods for obtaining Accepted Ratings of rating transmission facilities through:

- A predictable rating process (who does what, when, etc.) that is well understood and is accepted as standard practice in WECC;
- Methods for determining and demonstrating ratings;
- Reviewed by the WECC membership;
- A level field for negotiations to resolve capacity allocation issues between parties.

This procedure describes the transmission rating process that project sponsors and participants shall follow to demonstrate their project meets the NERC/WECC Planning Standards. It is divided into three separate phases and is meant to mirror the development process for projects.

Phase 1 is conducted by the project sponsor and is initiated when the project sponsor submits a report through the WECC Progress Report Policies and Procedures process or when a formal letter of notification is provided to the PCC and Technical Studies Subcommittee (TSS). During Phase 1, the project sponsor is to conduct sufficient studies to demonstrate the proposed non-simultaneous rating of the project and prepares a Comprehensive Progress Report documenting study results and describing project details including a preliminary plan of service.

Phase 2 encompasses a review of the project's plan of service by a Project Review Group, comprised of interested WECC members. During this phase the Project's Planned Rating is validated and the simultaneous transfer capability effects and the impact of the project on neighboring transmission systems are further assessed. The project sponsor and the Project Review Group must document all the studies and findings in a report called Project Review Group Phase 2 Rating Report. Phase 2 is completed when the Phase 2 Rating Report is accepted and the project is granted an "Accepted Rating."

Phase 3 is the last part of the Project Rating Review Process. Phase 3 is a monitoring phase where major changes in assumptions and conditions are evaluated to assure the "Accepted Rating" is maintained. Phase 3 is completed when the project is placed into service.

The three-phase process is intended to address planned new facility additions and upgrades or rerates of existing facilities that require coordination through a review group comprised of the project sponsors and other members which may be affected by the project. It is recognized that some rerates of existing transmission paths or the addition of new facilities will not be of significance to others or may not require the formation of a review group. If an Accepted Rating is desired, these projects can be expedited through the three-phase project rating review process described in Section 3.0.

2.0 Policies and Guidelines for Project Rating Review

Principles for establishing a transfer path "Accepted Rating" are encompassed in the following policies and guidelines.

2.1. Objectives

The objectives of the policies and guidelines are to ensure the development of an efficient, reliable electric system and to balance the competing interests of protecting the legitimate ratings of existing facilities while encouraging the economic, reliable, and environmentally sound expansion of the electric system. Ratings of existing facilities deserve a degree of protection; however, this should not discourage needed system expansion. Conversely system expansion should not unfairly penalize existing system facilities.

2.2. Policies

To support these objectives, WECC has adopted the following policies for rating transmission facilities.

- 1. Parties will plan, design and operate their systems consistent with the criteria and policies of WECC including the following:
 - NERC/WECC Planning Standards
 - Minimum Operating Reliability Criteria
 - Policies and Procedures for Regional Planning Project Review, Project Rating Review, and Progress Reports
- 2. New facilities and facility modifications should not adversely impact Accepted or Existing Ratings regardless of whether the facility is being rated. New or modified facilities can include transmission lines, generating plants, substations, series capacitor stations, remedial action schemes or any other facilities affecting the capacity or use of the interconnected electric system.

2.3. Paths Subject To This Procedure

Transmission paths shall complete the path rating process specified in this procedure and obtain an Accepted Rating if any of the following criteria apply:

- 1. The limiting condition (e.g. thermal limit, stability, or voltage) in determining the system operating limit for the path is on another system, and the affected member system requests the path be rated;
- The path must be operated within the constraints of a nomogram to meet the NERC/WECC Planning Standards, the elements of the nomogram (e.g., path flows or generation levels) are in different systems, and one of those systems or a neighboring member system requests the path be rated;
- The path owners or operators have requested a seasonal operating transfer capability limit for a new path or the path owners or operators have requested a seasonal operating transfer capability limit that is in excess of the a path's rating (Accepted, Existing, or Other);
- 4. A facility (e.g., generator, series or shunt reactive equipment, Remedial Action Scheme, etc.) that an Accepted Rating depends upon is modified or retired from service, whether the facility is owned by the same system as the rated path or not.

For the purposes of these criteria, transmission dependent utilities, loads or generators interconnected exclusively to the path operator's system are not considered other systems. In addition, any project may seek a rating under the WECC path rating process on a voluntary basis.

2.4. Protection of Ratings

The protection of ratings encompasses the following:

- The amount of power that a rated project can transfer is protected from being diminished due to subsequent projects;
- Protection for a rating is conferred by obtaining an Accepted Rating or by virtue of having an Existing Rating and is subject to a benchmarking case comparison;
- If the capability of a path were diminished due to new or modified Transmission or Generation Projects (as demonstrated in benchmark comparison of studies with and without the change) it would constitute an "impact" to a protected rating that will require mitigation;
- 4. All WECC members shall actively participate in defining in advance of operation, any potential simultaneous transfer limits. The burden of reporting, modeling, and studying the project and assessing its impact on the interconnected system, will be shared, with the sponsors taking the lead and primary responsibility. Other affected members have the responsibility to actively participate in the review process;
- All parties benefit from interconnected system operation. There may be benefits to interconnected system operation other than increased transfer capability and these benefits should be appropriately recognized;
- 6. The WECC process for determining the Accepted Rating of a project will:
 - Allow for review of studies by all potentially affected parties, and
 - Comprehensively address both simultaneous and non-simultaneous conditions.
- 7. WECC requires operating limits to be identified, reviewed, and approved by the Operating Transfer Capability Policy Committee (OTCPC). Facility owners/operators are responsible for establishing operating procedures and notifying the Operating Procedures Review Group (OPRG) that these procedures are in place. The involved parties will expeditiously negotiate operating strategies and/or curtailment allocations prior to initial operation to assure operating within safe limits. Negotiations shall not unduly delay new projects and disputes shall be resolved expeditiously through WECC's Alternate Dispute Resolution (ADR) process or some other process as mutually agreed to by the parties;
- 8. If all planned facilities, including facilities of other projects upon which the rating studies relied, are not installed for a project or are modified or retired from service, then the project participants should be responsible for the corresponding reduced rating and associated curtailments;
- 9. New simultaneous limits may be discovered between existing transmission paths even when no facilities or ratings are being changed. The limits may be caused by the

retirement of existing facilities or changes in system load and/or resources that occur over time in several systems. The involved parties will expeditiously negotiate operation strategies and/or curtailment allocations to ensure continued operation within safe limits. Negotiations shall not adversely affect ongoing reliable system operations and disputes shall be addressed by the OTCPC or resolved expeditiously through WECC's ADR process or some other process as mutually agreed to by the parties.

2.5. Guidelines

The following guidelines apply with respect to adverse impacts on transfer capability:

- 1. Sections 6.0 and 7.0 address Principals and Scenario examples for rating transmission facilities. Project sponsors should refer to these for guidance in determining new ratings. It should be recognized that it is not possible to address all situations and issues that may arise in facility ratings. Project sponsors should be prepared to apply judgment in addressing facility rating issues not addressed in Sections 6.0 and 7.0;
- 2. A new project rating should not adversely impact the transfer capability of the existing system and individual paths in the system. A new project shall not result in a reduction of another project's Existing or Accepted Rating. If it does, the sponsors of the project should work with all adversely affected parties to mitigate transfer capability limitations or to negotiate appropriate and reasonable compensation. The intent is that new projects will be developed in consideration of the existing system and not cause reductions in existing transfer capabilities where mitigation options can be developed. The key consideration is achieving balance. Existing projects deserve a degree of protection; however, existing projects should not discourage needed system expansion. For example, a new project could create a new simultaneous relationship with an existing path or alter an existing simultaneous relationship between existing paths and still meet the intent of the rating process. Conversely system expansion should not unfairly penalize existing system facilities;
- When a simultaneous transfer conflict occurs between systems that have existing Accepted Ratings, the vintage of the rating should not, in itself, grant preference in determining curtailment allocations;
- Negotiated agreement between the affected parties is the preferred method for resolving simultaneous transfer conflicts. If negotiations fail, alternative dispute resolution should be considered;
- 5. Generally, the burden of resolving limitations between projects in Phase 2 of the Project Rating Review Process should be shared between the projects. In allocating curtailments or costs of mitigation, consideration should be given to factors including:
 - State of completion of planning
 - Level of commitment to project
 - Speed of progress
 - Projected completion dates

3.0 Project Rating Review Process

3.1. Objectives

To fulfill the purpose of these Policies and Procedures, project sponsors should consider potential interactions and problems of simultaneous transfers when performing the planning studies for a project. To facilitate this purpose, WECC has adopted the following Project Rating Review Process to guide the project sponsors through their planning effort.

The Objectives of the WECC Project Rating Review Process are to:

- Adequately communicate project plans, performance and limitations to all affected parties during the period from project inception to commercial operation;
- Ensure a reasonable and diligent effort to discover simultaneous limitations and assure their resolution prior to operation;
- 3. Provide the opportunity for owners of existing or future facilities that may be affected by the project to participate in review of the project studies;
- Facilitate the conclusion of all necessary studies in a timely manner;
- 5. Identify operating limitations and facilitate the sponsor's development of mitigation measures with sufficient lead-time to allow development of operating procedures;
- Integrate projects into the existing system in a manner that will preserve interconnected system reliability and operating efficiency.

3.2. The Rating Process

The project sponsor is responsible for initiating and following through with the rating process. The Rating Process covers the period of activity from the first announcement of a project (through either the WECC "Existing Generation and Significant Additions and Changes to System Facilities" report or through a letter of notification to PCC and TSS members) to when it is placed in operation. While the sponsor is responsible for initiating and completing the planning process, there is a shared responsibility between the sponsor and the rest of the WECC membership to complete some parts of the process.

The Rating Process consists of three Phases:

Phase 1 - Project Definition

This phase includes definition of the proposed project including a proposed rating.

Phase 2 - Facility Rating

This phase is to address issues related to the rating, mainly Simultaneous Transfer Capability, but also Non-simultaneous Transfer Capability if issues were not resolved in Phase 1.

Phase 3 - Project Implementation

This phase covers the construction period for the project. Phase 3 is deemed complete when the project is placed in service.

The rating process also provides for project sponsors to compress activities when the project rating is not expected to raise significant concerns. This is described in Section 3.3 - Expediting the Process.

Throughout the planning process the sponsor is responsible for adequately communicating and coordinating the development of the project with existing facilities and other projects. WECC provides many opportunities for the project sponsor to communicate information to members and interested parties about the project through informal reports at various committee meetings, as well as the preparation of progress reports.

This project rating process has been established to ensure that the planning process is completed in a timely and orderly manner. The process is pictorially illustrated in Figure 2.

3.2.1. Phase 1 - Project Definition

Phase 1 is to define the proposed project and proposed rating. Phase 1 is often overlapped with the Regional Planning Process and is complete upon acceptance of a Comprehensive Progress Report by TSS.

The project sponsor's initial announcement of a project starts Phase 1 of the planning process. This announcement takes place when the sponsor submits data on the project for the WECC Progress Report Policies and Procedures report or provides a letter of notification. If a letter of notification is used, the letter should include a complete description of the project including the proposed path rating and shall be distributed to all PCC and TSS members (WECC staff will distribute material upon request of the project sponsor). For the purposes of these criteria, transmission dependent utilities, loads or generators interconnected exclusively to the path operator's system are not considered other systems.

3.2.2. Phase 1 Requirements

During Phase 1 the project is in the preliminary phase of development and a definitive plan of service may not be available. The sponsor should be performing the necessary studies to develop a preliminary plan of service and a Planned Rating. Studies should focus on the non-simultaneous rating; however, known simultaneous effects should also be addressed. During Phase 1, the project has only a Proposed Rating and other projects in later phases of the planning process are not obligated to recognize the project in their studies.

3.2.3. Completion of Phase 1

The transition from Phase 1 to Phase 2 is accomplished by notification from the TSS Chair of the completion of all the following:

- PCC has completed its assessment of the project's conformity with WECC's Regional Planning Guidelines (applies only to those projects identified by PCC in which regional interest has been expressed).
- The project sponsor has submitted a full project representation to WECC for inclusion in WECC base cases.

 The project sponsor has distributed a Comprehensive Progress Report accompanied by a letter to TSS and PCC requesting Phase 2 Status for the project.

If the above criteria have been satisfied and no objections have been received within 60 days of WECC's receipt of the request to enter Phase 2, the project sponsor(s) will so notify the TSS Chair and provide evidence that the project has satisfied all requirements. The TSS Chair will consult with the WECC staff and members and, upon determination that all requirements have been met, will notify PCC and TSS members that the Comprehensive Progress Report has been accepted and the project has entered Phase 2 of the planning process. This signals that the project sponsor's preliminary planning studies have been completed and a Planned Rating for the project has been established using accepted methodology.

It is recognized that the rating process can be very complex. Notwithstanding the minimum reporting requirements necessary to qualify for transition to Phase 2, it may not be practical to address all technical questions within the defined Phase 1 scope. Unresolved issues may include:

- Planning and technical issues that are necessary to demonstrate compliance with the Reliability Criteria have been adequately addressed. This includes addressing simultaneous technical interactions between projects, including known interactions and new interactions that are intended to be identified and that have bearing on reliability of the interconnected electric system and development of associated nomograms;
- Adequacy of supply is not a factor in the rating process as a stand-alone requirement. It may be an indirect factor if generation patterns have bearing on the technical rating issues described above. Adequacy of supply issues are to be addressed in other forums;
- Commercial issues are to be addressed outside of the rating process by the
 affected parties. It is the intent of these policies and procedures that commercial
 issues be resolved before operation at the new Accepted Rating commences. It
 is intended that new projects that meet all reliability requirements not be
 unreasonably delayed by commercial discussions.

It is expected that during the 60-day comment period, the involved parties will make a good faith effort to identify issues early in the comment period and resolve their issues of disagreement. It is expected that policy level personnel from the involved parties will strive to resolve issues of disagreement. If at the end of the 60-day period, there still exists unresolved concerns over the Comprehensive Progress Report the project sponsor may agree to address the comments in Phase 2, in which case the Comprehensive Progress Report can be accepted and the project can move into Phase 2, provided that all other Phase 2 entry requirements have been satisfied. Otherwise, the project will remain in Phase 1.

Notification by the TSS Chair of the acceptance of the Comprehensive Progress Report and the Planned Rating indicates completion of Phase 1 and transition to Phase 2.

3.2.4. Phase 2 - Facility Rating

Phase 2 of the Rating Process is to:

- Demonstrate conformance with NERC/WECC Planning Standards;
- Identify the non-simultaneous transfer capability and simultaneous path transfer capability limits for a specific plan of service;
- Address the mitigation of adverse impacats on simultaneous and non-simultaneous transfer capability relative to the existing system;
- If applicable, resolve comments on the Comprehensive Progress Report.

3.2.5. Phase 2 Requirements

During Phase 2, the project sponsor will lead a Project Review Group comprised of interested WECC member representatives. Prior to or during this phase the project sponsor will request TSS, PCC, and OC member interest in forming a Project Review Group. A 30-day period (starting from WECC's distribution of the letter) will be allowed for recipients of the letter to respond with their interest in participating in the Review Group. This letter may be mailed at the same time as the Comprehensive Progress Report is mailed, although the deadline for expressing interest in participating in the Review Group cannot be before the deadline for comments on the progress report. Details concerning the formation of the Project Review Group are discussed in Section 3.5, Formation of Project Review Group. Members with interest in the project rating should participate in the Project Review Group, as it is the Project Review Group comments that will determine the outcome of Phase 2 and transition to Phase 3.

Phase 2 is the appropriate phase in which adverse impacts are discussed and mitigation plans established. If a new transmission project potentially impacts an Existing Rating or an Accepted Rating then it is expected that mitigation plans be developed in Phase 2 by the project sponsor to alleviate the adverse impact. A change, for example, that affects the effectiveness of a Remedial Action Scheme (RAS) is expected to be addressed in Phase 2 if the RAS effectiveness has a direct adverse affect on an Existing or Accepted Rating. The essential burden of mitigating or compensating for new problems relative to the existing system lies with the project sponsor. Allocations of ratings are considered to be commercial issues and are not addressed by the WECC transmission path rating process.

All projects with Planned Ratings should consider each other as appropriate in their planning studies. Once a project has entered Phase 2 it has attained a Planned Rating and is considered on an equal basis with other projects similarly situated in Phase 2. Projects in Phase 2 are not ranked according to degree of disagreement regarding specific project issues. The term "similarly situated" refers to the relative timing of projects based on the stage of study that each project is in within Phase 2. For example, if a Phase 2 project has substantially completed studies, it would be further ahead in the process compared to a project that has just begun its studies. These projects would not be "similarly situated."

3.2.6. Completion of Phase 2

A 30-day period for comments from the Project Review Group on the Phase 2 Project Rating Report (starting from WECC distribution of the report) will be allowed. This maybe shortened if all members of Project Review Group are satisfied with the Phase 2 Project Rating Report.

After addressing the concerns and issues raised by the review group or after making a good faith effort to do so, the project sponsor will distribute the Phase 2 Rating Report to PCC, TSS, and OC. PCC members will have 30 days to comment on conformance with this Procedure. The PCC comments will not encompass adverse impacts or mitigation plans, as these are the responsibility of the Review Group. Completion of Phase 2 can be addressed in a number of ways:

- 1. If all comments received pertaining to the project's conformance with WECC criteria, policies, and procedures have been resolved, the project sponsor will so notify the PCC Chair and formally request Phase 3 status. This request can be made at the same time as the Phase 2 Project Rating Report is distributed to the Project Review Group for the final 30 day comment period. The PCC Chair will, upon determination that the requirements have been met, notify the PCC, TSS, and OC members that the Phase 2 Rating Report has been accepted and the project has entered Phase 3 of the planning process;
- 2. If comments from a review group member concerning the project's compliance with WECC criteria, policies, and procedures are received that cannot be resolved, the disagreements will be handled in accordance with the resolution process provided in the WECC Progress Report Policy and Procedure. Disputes that cannot be resolved through the progress reporting procedure should be resolved using WECC's Alternative Dispute Resolution (ADR) process or by some other process as mutually agreed upon by the parties;
- 3. In the event that outstanding issues have not been resolved using the processes described above, the PCC Chair will determine, through a formal balloting process, whether PCC members are satisfied that the project has met all requirements of Phase 2 of the path rating process. The PCC Chair will consult with the WECC Board Chair and WECC CEO regarding Phase 2 completion determined in this manner.

Upon determination that Phase 2 has been completed, the PCC Chair, in consultation with the TSS Chair and WECC staff, will notify the PCC, TSS, and OC members that the Phase 2 Rating Report has been accepted and the project has entered Phase 3 of the project rating review process. The final accepted Project Rating Report will be attached to this notification. The acceptance of the Phase 2 Rating Report will complete Phase 2 and establish an Accepted Rating that must be considered by other projects in all phases of the planning process.

3.2.7. Phase 3

Phase 3 is entered upon successful completion of Phase 2. This phase includes construction and assumes the sponsor is committed to the project. The essential

planning activity during this phase is maintenance and monitoring of the Accepted Rating and assuring that the project will be completed in a timely manner in accordance with the plan of service presented in the Phase 2 Rating Report. For a project consisting only of a rerating of the existing system, Phase 3 would simply entail instituting the rating.

A project in Phase 3 will be considered to be part of the "existing system" for the purposes of a project being planned. All other projects in earlier phases of the planning process must treat Phase 3 projects as part of the existing system. Because a Phase 3 project is considered a peer with the existing system, if new simultaneous transfer limitations are discovered, their resolution will be shared among the parties as if the project were complete.

The project's Accepted Rating is only "at risk" due to its failure to complete its own plan of service as presented in the Phase 2 Rating Report or the failure of other projects that were relied on in establishing the rating or failure to follow its own milestone schedule. If the schedule for project completion is delayed or interrupted, the project sponsor may be required to repeat or update Phase 2 of the planning process. This is further described under Monitoring Project Progress.

When construction is complete (or in the case of up-rates of existing facilities - when all operating procedures, etc. are accepted by the Operating Procedures Review Group and in place) and the project is placed in operation, the planning process will also be complete and the project will be a fully accepted part of the existing system.

3.3. Expediting the Process

The Rating Process is designed to provide for an orderly completion of steps with adequate times for member participation and comments for significant or complex projects. However, in some cases in which the project sponsor anticipates that there will be few comments or that comments can be addressed and incorporated in the project without delays, the project sponsor may seek to expedite the process of achieving an Accepted Rating. Expediting the process results in simultaneous acceptance by PCC of both the Phase 1 and Phase 2 requirements. One example of a project seeking expeditious treatment is the up-rating of an existing transmission path accomplished by changing an operating procedure or installing a new remedial action scheme.

Expediting the process involves combining several of the rating process steps. The Letter of Notification, the Comprehensive Progress Report, and the request for interest in forming a Review Group may all be combined into a single mailing. Project sponsor notification at the beginning of the process shall include a clear statement of the desire to expedite the process. PCC members concerned that expediting the process will not give adequate opportunity for rating review should notify the project sponsor and PCC Chair as soon as possible.

While all the timelines for the individual steps would still apply, they may be done concurrently and the Project Review Group may be formed before comments are due on the Comprehensive Progress Report. For example, the WECC Progress Report Policies and Procedures requires a 60 day comment period for the Comprehensive Progress Report

which can be concurrent with the 30 day period required for forming the Project Review Group and the 30 day period for PCC to comment on the conformance with this procedure. However, while these two processes are allowed to overlap, the deadline for expressing interest in participating in a Review Group cannot end before the end of the 60-day comment period for the Comprehensive Progress Report has expired. Acceptance of completion of Phase 2 and transition into Phase 3 is as described above. If the Phase 2 Rating Report is unchanged from the Comprehensive Progress Report, the project sponsor should send a letter stating such to PCC and TSS.

Expediting the process has the advantage of facilitating the process of achieving an Accepted Rating for a straightforward project. However, during the expediting of a project rating process, the project remains in Phase 1. Consequently, the project does not achieve any status with respect to projects in Phase 2. Should significant or unanticipated issues arise, the project sponsor may find that the process cannot be expedited and may request Phase 2 status and follow the Phase 2 process discussed in Section 3.2.

If the proposed path rating change is planned to occur within 6 months after WECC notification, the Compliance Monitoring and Operating Practices Subcommittee (CMOPS) and the Technical Operations Subcommittee (TOS) should be included in the various rating process mailings.

3.4. Monitoring Project Progress

Granting of Phase 2 status or an Accepted Rating to a project/project sponsor obligates other WECC members to various levels of recognition and accommodation in the planning of other projects. In exchange for this, a project sponsor is responsible for maintaining the project's Phase 2 status and rating with a continuous demonstration of steady progress toward commercial operation through continued compliance with the WECC Progress Reporting Procedure.

A Phase 2 status may be lost if a project in Phase 2 shows no evidence of any activity (for example, correspondence with or meeting of the project review group, conducting studies required in Phase 2) for a period of 24 months after the achievement of Phase 2 status. In this case, the project will revert to Phase 1 status upon review by TSS. The TSS Chair will notify the project sponsor of loss of Phase 2 status. The project sponsor can revive the project's Phase 2 status by providing evidence that Phase 2 studies and/or project review group meetings are being conducted.

Accepted Rating Status may be lost if a delay in meeting any project milestones by 12 months or more occurs or a change in the project's plan of service adversely impacts the Accepted Rating.

If either of these conditions occur, the project sponsor will promptly notify TSS, PCC, and the Project Review Group. The project sponsor will consult with the Project Review Group to determine if the project status will revert back to Phase 2 with a Planned Rating or remain in Phase 3 with an Accepted Rating. Also, a determination will be made if additional study work is necessary. The project sponsor will promptly notify PCC and TSS regarding the determination of the Project Review Group.

3.5. Formation of a WECC Project Review Group

A WECC Project Review Group is formed to facilitate review of planning studies for a project in Phase 2 of the Project Rating Review Process. The Project Review Group provides WECC members the opportunity to meaningfully contribute to the plan of service for the project and identify concerns with potential impacts of the project.

Timing of the Project Review Group formation is at the sponsor's discretion, but should generally be soon after the project enters Phase 2. While the Project Review Group will normally complete its task at the end of Phase 2, the Project Review Group members should stand ready to help the project sponsor resolve additional simultaneous transfer related issues should they occur and to determine if the project status should revert back to Phase 2 as described under the Section 3.4, "Monitoring Project Progress."

While participation in a Project Review Group is voluntary and open to all WECC members, it is recommended that, at a minimum, the Project Review Group membership include all parties who have expressed an interest in joining the Project Review Group. The responsibility for forming the Project Review Group belongs to the project sponsor, but the responsibility for facilitating an objective, positive and effective Project Review Group is shared by all WECC members.

The Project Review Group's main area of interest lies in identifying all non-simultaneous and simultaneous impacts and methods for mitigating these for both the existing system (including Phase 3 projects) and other projects in Phase 2. Project Review Group participants are responsible to provide any necessary information required to prepare the simultaneous transfer studies, which should be fully supported by studies and/or mitigation measures. Likewise, it is the responsibility of the project sponsor to adequately address all appropriate issues raised by the Project Review Group members or as they arise during the course of the study process.

Mitigation methods may include, but should not be limited to additional facilities, remedial action measures, and operating nomograms. The implementation of the findings of the Project Review Group will be at the discretion of the project sponsor, however, the project sponsor is responsible for adjusting the project's rating, if appropriate. The functions of the Project Review Group are technical in nature and should not address curtailment procedures. While the project sponsor is responsible for addressing curtailment procedures, they should be addressed through negotiations outside of the Project Review Group.

It should be recognized that some projects will be more difficult to evaluate than others which may require a significant effort by the project sponsor and the Project Review Group members. The Project Review Group is a shared responsibility between the project sponsor and the WECC members and as such, the project sponsor is not obligated to "study the world." Should circumstances arise where studies being requested go beyond the capability of the project sponsor, the project sponsor may, at its discretion, request a Project Review Group member(s) to run some of the studies as may be needed.

Figure 2

	Commercial				
Project Rating Review Process	Comm		ıstruction	ess	UST treat the rovided it
	Phase 2 completed when the WECC Phase 2 Rating Report is accepted by PCC. This establishes the "Accepted Rating"	Phase 3	Permitting & Construction	Monitoring Progress	Other projects MUST treat project as part of the existing system provided it continues to meet
	Pha complet the WEC 2 Rating is acce PCC. establis "Acc Rati	Phase 2	ermitting	ew Group es support s and Non- s Ratings	vith Planned recognize appropriate
	Phase 2 started by acceptance of a Comprehensive Progress report by TSS. This establishes the "Planned Rating"	Ph	Planning & Permitting	WECC Review Group Rating Studies support Simultaneous and Non- Simultaneous Ratings	All projects with Planned Ratings shall recognize each other as appropriate
	Phase by acce a Comp Progre by TS establi "Planne"	Phase 1		Sponsor's Independent Studies	Other project not obligated to recognize new project in their studies
	Phase 1 started by Project announcement through Significant Additions Report. This establishes the "Proposed Rating"		Planning	Sponsor? Studies	Other projec to recognize their studies
	Phase 1 Prannou thr Sign Addition This es the "P	Planning Phase	Project Activities	Study Emphasis	Study Considerations

milestones

4.0 Philosophy and Principles For Transmission Path Rating Methods

4.1. Introduction

A project is defined as a new transmission path or a change in rating of an existing path through facility additions, facility upgrades, or the re-rating of existing facilities. The primary focus the Procedures For Project Rating Review is to establish a set of well defined principles for determining Accepted Ratings for Transmission Paths. These principles are intended to foster a consistent "transmission rating method," that will provide a level playing field for the traditional utility as well as the non-utility organizations that are participating in the planning and operation of the WECC interconnected bulk electric system. All participants are expected to follow the principles; consequently, they must be practical, technically sound, unambiguous, and promote efficient utilization of the system while maintaining the standards within the Reliability Criteria. The determination of an Accepted Rating for a path is important for several reasons, including but not limited to, assuring reliable operation, determining access or contract rights, and establishing scheduling limits.

4.2. Philosophy

To determine the Accepted Rating for a path, the method described below and in the Progress Report Policies and Procedures should be followed. This should apply to all paths whether they are considered "internal" or "external". Ratings are pre-outage, all facilities in service, and may be achieved through the use of appropriate Remedial Action Schemes. The adoption of a consistent study method should ensure that the Accepted Rating of a Transmission Path:

- Is technically sound;
- · Can be used in actual operation, and;
- Is consistent with the flow achievable on the Transmission Path.

This method does not constrain how parties may commercially allocate the rating of a path among its owners. In addition, this method does not constrain how owners of interacting paths may allocate curtailments among their paths.

The WECC Project Review Group described in the Procedures for Project Rating Review is responsible for insuring that these guidelines are being followed in developing an Accepted Rating. The Project Review Group is also responsible for insuring that the study plan and base cases represent realistic conditions.

The planning process should address potential unscheduled flow impacts at least to some extent. One reasonable way to address unscheduled flow is to establish Transmission Path ratings at a level where no system reliability problems exist and schedules will be limited by the maximum flow that can occur on the path under realistic (although perhaps optimistic) conditions. This rating philosophy embodies a Maximum Flow Test (MFT), and precludes having schedules on the transfer path that exceed the resulting Accepted Rating. Consequently, this aspect of the planning process is a positive step in limiting unscheduled

flow that would otherwise be higher if the Accepted Rating is not constrained by the MFT. With the concurrence of all affected parties, the sponsor may use some method other than the MFT. All sponsors must inform PCC of what method they intend to use including an explanation in principle of what the proposed method is intended to accomplish.

It is the desire of all parties to afford some measure of protection for path ratings. Protection is a fundamental element of what an Accepted Rating provides. An Accepted Rating is fully peer reviewed, recognized in future planning studies, and directly usable in operations for both scheduled and actual flows. An Accepted Rating addresses both simultaneous and non-simultaneous transfer capabilities, and may involve the use of nomograms or remedial action schemes. It is not acceptable for a new project to cause a reduction in an Accepted Rating unless mitigated or compensated by the new project. Not withstanding this protection philosophy, compliance with the Reliability Criteria will always be the overriding consideration.

4.3. Principles

The following principles are the basis for the methodology to be used in determining the Accepted Rating of a Transmission Path.

4.3.1. Reliability Limited Ratings

An Accepted Rating is determined to limit the scheduled and actual use of a transmission path to levels that meet the WECC Reliability Criteria For Transmission System Planning.

4.3.2. Realistic Simulation

Studies and analyses performed to determine the Accepted Rating of a transfer path must use realistic simulations, i.e., the use of fictitious devices will not be allowed and the system conditions represented must be realistic, in the judgment of the Project Review Group. Considerable latitude is intended to be allowed in determining realistic conditions. When remedial action schemes are used, they should be modeled as they will be applied in operation.

4.3.3. Flow Limited Ratings

Certain Transmission Paths may not be limited by reliability considerations. For example, a path may be limited by the amount of available resources, or parallel a lower impedance path. Where this occurs, these paths will be described as flow limited (as opposed to reliability limited). When testing for this condition, considerable latitude in the base case assumptions is allowed in maximizing the flow on the path being rated. After the flow on the path has been maximized with the above consideration and a reliability limit has not been reached, a Maximum Flow Test (MFT) is defined as having been passed for the path being rated. This maximum flow achieved is called a flow limited rating and is protected.

An advantage to defining this maximum flow as a flow limited rating is that this produces a reasonable way to address potential unscheduled flow in the planning

process. By defining this as a "rating," schedules will be limited by the maximum flow that can occur on the path under realistic conditions.

However, if the MFT is not applied then with the concurrence of all affected parties, the sponsor may use some other method to determine a path rating. The project sponsors must inform PCC of what method they propose to use during Phase 2 of the rating process, including an explanation in principle of what the proposed method is intended to accomplish. The intent is to allow potentially affected parties not already on the Project Review Group to come forward.

4.3.4. Accepted Rating Protection

A new project shall not cause a reduction in an Accepted Rating (e.g., because of a reliability criteria consideration) unless mitigated by or compensated by the project. However, if a facility is retired from service (e.g., generator, shunt reactive equipment, Remedial Action Scheme, etc.), all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirements are not mitigated. Just as with the addition of facilities, planning for the retirement of facilities must be closely coordinated with affected systems (e.g., through the Progress Reporting or Project Rating Review procedures) to allow adequate time to mitigate any Adverse Impacts and negotiate any commercial issues (e.g., which system should be responsible for the costs of mitigation). If a path's Accepted Rating relied upon the facilities that are not part of the path's Plan of Service, and if those facilities are retired, modified, or never built, the Accepted Rating is subject to review in the same manner as if changes had occurred in the path's Plan of Service.

A transmission path's Accepted Rating will not be lowered because its maximum achievable flow is reduced (i.e. the path can no longer meet the Maximum Flow Test) due to system changes made by others except for certain changes as described in the previous paragraph. System owners that make such changes shall be responsible for mitigating any adverse impacts on the other system.

Transmission path owners that make changes to their system that increase the flow on a path with a flow limited rating can receive a higher Accepted Rating consistent with the Maximum Flow Test. This same principle applies if the flow on the path is increased by a project initiated by another party; although, in that case, it should be recognized that the higher Accepted Rating relies upon and is subject to the operation of the other party's facilities.

4.3.5. Application To Existing Systems

Although the primary focus of the Procedures For Project Rating Review and the Progress Report Policies and Procedures is to determine the way to establish ratings for new projects, existing transmission paths cannot be ignored. Existing transmission paths have been rated using various methodologies and guidelines, some of which are inconsistent with the method proposed in this document. These inconsistencies are primarily in the areas of flow limited paths, use of fictitious elements, and Latent Capacity.

This document is intended to assure the development of an efficient, reliable electric system and to balance the competing interests of protecting the legitimate ratings of existing facilities while encouraging the economic and environmentally sound expansion of transmission capacity. The following principles guide how existing transmission paths are treated within the WECC rating process.

- 1. Transmission path ratings that were known and used in operation as of January 1, 1994, will be classified as Existing Ratings.
- 2. A sponsor of a new project who is impacted by an Existing Rating and is in Phase 2 of the WECC rating process may ask that the Existing Rating be reviewed. The Project Review Group is responsible for deciding if, and how, the Existing Rating will be demonstrated.
- 3. If an owner desires to establish an Accepted Rating for an existing Transmission Path, the then current WECC approved guidelines will be followed.
- 4. A Transmission Path's Existing Rating will not be lowered because of reduced maximum achievable flow on the path due to system changes made by others.
- Transmission path owners that make changes to their system that reduce the maximum achievable path flow, will have their Existing Rating reduced by the amount the path's flow was reduced.

4.3.6. Latent Capacity

Latent Capacity is the transfer capability that may be acquired by improving an existing path without adding new lines to the path. Latent Capacity is not protected, it cannot be used in operation, and it is not recognized nor incorporated by others in their rating studies. The only means of protecting Latent Capacity is to pursue a committed project through the three phase WECC rating process presented in Part 2 of this document.

Project sponsors, as appropriate, should identify and document Latent Capacity. Documenting information on Latent Capacity may be useful for:

- Promoting appropriate decisions in generator siting;
- Facilitating Regional Planning;
- Fulfilling transmission access request requirements;
- Establishing one's intent to expand the transmission system;
- Gaining expedited review by a Project Review Group provided the Latent
 Capacity has been adequately reviewed and documented and the Project Review
 Group determines that the original documentation is still applicable;
- Providing some assistance in contract negotiations.

4.3.7. Margin

If planning margin beyond that afforded by the WECC Reliability Criteria is considered necessary, the project sponsor or participant/member of a Project Review

Group may establish the additional planning margin requirement when determining a path rating. To allow potentially affected parties not on the Project Review Group to come forward, the project sponsors must inform PCC of their intent regarding the requirement for additional planning margin during Phase 2 of the rating process, including a justification of why the additional planning margin is needed. The justification for additional planning margin should specifically address the following points:

- 1. Explain how the amount of planning margin is related to risk.
- 2. Describe how the amount of planning margin applied to a path rating is related to the level of uncertainty in determining the rating.
- 3. Define the rationale for the amount of additional planning margin recommended.
- 4. Explain how it would be consistently applied.

In cases where the Project Review Group concurs that additional planning margin is appropriate, the rationale will be forwarded to the Reliability Subcommittee for consideration in determining if there is a need to modify the WECC Reliability Criteria.

4.3.8. Neutrality of Path Definitions

When a new facility interacts with an existing path, whether the new facility is included in the path for rating purposes or remains outside of the path, it should be operationally transparent to an adjacent party (outside of either path). One option is to include the new facility in the existing path and manage the expanded path as a single unit. A second option is to define the new facility as a new path and define the relationship with the existing path in a nomogram. As long as all parties agree to operate within a nomogram, then an equivalent result should be obtained as viewed by an adjacent party.

4.3.9. Reverse Flow

It may be impossible to achieve a desired MFT if one is trying to rate a line in a direction counter to prevailing flows. Parties faced with such a circumstance could still schedule transactions over the path in the opposite direction using a net scheduling approach. Once the rating of a Transmission Path has been established, scheduled transactions over the path are permitted in either direction providing the net schedule at any time does not exceed the path rating in either direction. For example, if the path rating has only been established in one direction, schedules are still permitted in both directions as long as the net schedule is in the same direction as the path rating direction and does not exceed the path rating.

5.0 Phase 2 Accepted Rating Comprehensive Study Plan

5.1. Introduction

The purpose of this study plan is to provide a consistent, comprehensive study methodology for the path or project sponsor to follow in establishing an Accepted Rating for either an existing Transmission Path or a Transmission Path which includes a new project.

The following generic study plan is an example describing activities appropriate to rating a major transmission project. Not all of these proposed activities are necessary for all projects. Sponsors studying smaller projects should use this as a "shopping list" to pick the activities that are right for their needs.

5.2. Study Objectives

5.2.1. Satisfy Reliability Criteria

In establishing an Accepted Rating for an existing path or for a path with a new project, the Accepted Rating should satisfy the NERC/WECC Planning Standards and this document as well as other appropriate WECC criteria.

5.2.2. Affirm Plan of Service For a New Project

- 1. If a new project is planned, the Project Review Group should review and comment on the Plan of Service.
- The Project Review Group should establish a consensus that the Plan of Service supports the Accepted Rating.

5.2.3. Acquire An Accepted Rating

- In establishing the Accepted Rating for a Transmission Path, the nonsimultaneous and simultaneous transfer capabilities should be determined.
- 2. The impact of the new project on other projects or paths with Existing Ratings, Planned Ratings similarly situated in Phase 2, or Accepted Ratings should be determined.
- The project sponsor should obtain concurrence from the Project Review Group regarding the study results.
- 4. A Phase 2 Rating report should be prepared for submittal to the WECC Planning Coordination Committee based on the findings of the Project Review Group.

5.3. Major Study Assumptions and System Representation

5.3.1. Project Description

Detailed information regarding the Plan of Service should be provided and should include the technical and physical characteristics of the project such as:

- 1. Associated generation (if any)
- 2. Line voltage, line length, other line characteristics
- Use of series capacitors, series compensation level, location of capacitor banks within the line, capacitor over voltage protection type (varistor or conventional gap)
- 4. Phase Shifters

- 5. Shunt reactive compensation
- 6. SVCs (with ratings)
- 7. Remedial Action Schemes
- 8. Other, if any

5.3.2. Other Phase 2 Projects Included

The project sponsor should provide a list of planned projects in Phase 2 of the Regional Planning Project Rating Review Process that could affect or be affected by the project under consideration.

5.3.3. Regional/Area Loads and Resources

System studies should be performed using the latest available load and resource data for the WECC interconnected system for the time frame being studied. In general, the load level modeled for the base cases should be typical for the time of year being evaluated. Sufficient generation should be represented to accommodate the interchange patterns described and in accordance with the individual system's plans or operating policies. Interchange transfers should reflect the objectives of the case.

5.3.4. System Representation

The path or project sponsors should explain how the system, both transmission and generation, will be modeled. The Project Review Group should approve the representation. For further guidance, see the System Review Work Group (SRWG) System Representation Guidelines in the SRWG Handbook.

The following are general guidelines for system representation:

- Full loop representation is to be used with the entire WECC system modeled.
- 2. All system elements will be in service for the assumed initial conditions.
- 3. System transfer levels for major WECC paths should be agreed upon and listed. Additional transfer paths should be included as appropriate.
- 4. Voltage criteria should be applied in accordance with existing practice by the respective utilities or the operating agents.
- 5. The phase shifter methodology to be followed for all applicable phase shifters should be identified.
- 6. A list of the series compensation assumptions for the major EHV lines should be provided.
- A detailed system representation of the study area should be modeled when appropriate.

5.3.5. System Stressing/Loading

- Loading on the subject path will be accomplished in such a way as to achieve the Accepted Rating of the path. In achieving the simultaneous transfer capability on the subject path, affected parallel Transmission Paths will not be loaded above their applicable Transfer Capability. The intent here is to set guidelines in developing reasonable base cases.
- The Transfer Capability of a path is based on the amount of power that flows on a path and not how much schedule change was required to load the path to its rating.
- Possible methods in which power will be made available for stressing the subject path include:
 - a. Sending Region
 - Available generating units should be added in a reasonable manner within the appropriate areas.
 - Loads should be decreased in a reasonable manner as agreed to by the Project Review Group within the appropriate areas. The amount of load reduction should be documented.

Receiving Region

- Those generators to be decreased in a reasonable manner should be specified within the appropriate areas.
- Load should be increased in a reasonable manner as agreed to by the Project Review Group within the appropriate areas. The amount of load increase should be documented.

5.4. Study Methodology

Power flow, stability and post-transient studies will be performed in accordance with the NERC/WECC Planning Standards, this document, WECC Post-Transient Study Methodology and local utility criteria and guidelines. General study guidelines follow in Section 5.5.

5.4.1. Development of Base Cases

- Select base cases from the most recent WECC cases available for the study time frame and conditions.
- The Project Review Group should update the base cases to reflect the
 most accurate system line configuration, generation, and load
 representation for each appropriate individual control area for the study
 time period.
- 3. Incorporate all appropriate study assumptions agreed to by the Project Review Group into the base cases.
- 4. Represent significant non-utility generators.

 Considerable latitude in the base case assumptions is allowed in maximizing the flow on the path being rated. The Project Review Group is responsible for insuring that the representation is realistic.

5.4.2. If an Accepted Rating is Needed for an Existing Path:

- 1. Determine the non-simultaneous transfer capability.
 - a. The objective of this phase of the study is to demonstrate that the path being rated meets the WECC Reliability Criteria and specific regional criteria where appropriate.
 - b. Stress the subject path to its proposed or expected non- simultaneous transfer capability and take outages. All parallel path flows should be at flow levels that result in non-interaction with the path being rated. If a limit due to a Reliability Criteria violation has not been reached or has been exceeded, increase/decrease, as appropriate, the stress level for the subject Transmission Path until a limit is reached.
 - c. If the ability to increase flow on the path is exhausted (due to lack of generation, parallel path overloading, etc.) prior to reaching a reliability limit, then the maximum flow achieved on the path is defined to be the non-simultaneous transfer capability and the path is considered to be flow limited.
- 2. Conduct screening studies to determine which parallel paths are to be evaluated on a simultaneous basis.
 - a. If the interacting paths are already identified, then the screening studies described below are not required.
 - b. If the interacting paths are not already identified, then a screening study should be conducted. Using the base case that established the non-simultaneous transfer capability, take the most critical outage on the path that established the path's non-simultaneous transfer capability. As a minimum study requirement, identify all parallel paths that pick up a ten percent increment or more based on that parallel path's rating due to the outage. Phase shifters should be in a non-regulating mode. It should be noted that this screening test is not intended to be the only consideration in determining the affect on parallel paths.
- 3. Determine the simultaneous transfer capability.
 - a. The objective of this phase of the study is to demonstrate that the path being rated meets the WECC Reliability Criteria under simultaneous conditions.
 - b. Using the base case that established the non-simultaneous transfer capability, individually stress every affected parallel path to its nonsimultaneous transfer capability on a path by path basis (whether reliability or flow based).

- c. After each path is at its individual non-simultaneous transfer capability, take outages and look for criteria violations. This step is performed on a path by path basis. If a violation occurs, determine a simultaneous nomogram describing the safe operating range. If criteria violations are not observed, then a simultaneous interaction problem does not exist.
- Conduct sensitivity studies.

Sensitivity studies should be conducted as agreed to by the Project Review Group and as they relate to the study objectives.

5.4.3. If an Accepted Rating is Needed for a Path with a New Project:

- Conduct pre-project benchmark studies, if needed.
 - a. Pre-project benchmark studies for the non-simultaneous and/or simultaneous transfer capabilities should be performed for the subject path (and, if necessary, other paths) if the system performance and/or the existing transfer capability without the project in service is unknown.
- 2. Determine post-project non-simultaneous transfer capability.
 - a. The objective of this phase of the study is to demonstrate that the proposed plan of service for the project is adequate to meet the WECC Reliability Criteria and specific regional criteria where appropriate.
 - b. Stress the path with the new project to its proposed or expected non-simultaneous transfer capability and take outages. All parallel path flows should be at flow levels that result in non-interaction with the path being rated. If a limit due to a reliability criteria violation has not been reached or has been exceeded, increase/decrease, as appropriate, the stress level for the Transmission Path until a limit is reached.
 - c. If the ability to increase flow on the path is exhausted (due to lack of generation, parallel path overloading, etc.) prior to reaching a reliability limit, then the maximum flow achieved on the path is defined to be the non-simultaneous transfer capability and the path is considered to be flow limited.
- 3. Conduct screening studies to determine which parallel paths are to be evaluated on a simultaneous basis.
 - a. If the interacting paths are already identified, then the screening studies described below are not required.
 - b. If the interacting paths are not already identified, then a screening study should be conducted. Using the base case that established the non-simultaneous transfer capability, take the most critical outage on the path that established the non-simultaneous transfer capability. As

a minimum study requirement, identify all parallel paths that pick up an increment of ten percent or more based on the affected path's rating due to the outage. Phase shifters should be in a non-regulating mode. It should be noted that this screening test is not intended to be the only consideration in determining the affect on parallel path.

4. Determine simultaneous transfer capability.

- a. The objective of this phase of the study is to demonstrate that the proposed plan of service for the project is adequate to meet the WECC Reliability Criteria under simultaneous conditions.
- b. Using the base case that established the non-simultaneous transfer capability, stress every affected parallel path to its non-simultaneous transfer capability on a path by path basis (whether reliability or flow based).
- c. After each path is at its individual non-simultaneous transfer capability, take outages and look for criteria violations. If a violation occurs determine a simultaneous nomogram describing the safe operating range. If criteria violations are not observed, then a simultaneous interaction problem does not exist.

5. Conduct sensitivity studies.

Sensitivity studies should be conducted as agreed to by the Project Review Group and as they relate to the study objectives.

5.5. Study Guidelines

5.5.1. General Principles

In general, companies involved will base the criteria applied to the Transmission Paths on the current criteria in use. These criteria should be made available to the Project Review Group and consistently applied.

5.5.2. Power Flow Guidelines

Power flow studies should be performed utilizing the following guidelines:

1. Phase Shifter Operation

- a. Phase shifters should be operated according to operating procedures established by the owners. The Project Review Group should agree to deviations to the procedures.
- b. For line outages, phase shifters should be operated at pre-outage phase angles unless resultant flows exceed established limits. If emergency loadings are exceeded, the owner of the overloaded phase shifter should be consulted about the impact of the disturbance on their system to determine an appropriate action to reduce the overload. The action could include reducing transfers.

2. Thermal Capacity Limits

- No transmission element will be loaded above 100% of its continuous rating under normal conditions.
- b. For a single contingency loss of an element(s), no transmission element will be loaded above its emergency rating. A list of continuous and emergency ratings for applicable facilities should be developed by the Project Review Group and included in the study documentation.

3. System Voltage Limits

- a. System stresses will be limited such that the NERC/WECC Planning Standards will govern voltage deviation for loss of a system element. All deviations from the WECC Reliability Criteria should be listed.
- b. Document important base case voltage criteria in this section. Also include a list of minimum acceptable bus voltages for outages.
 Provide a list of bus voltages to be monitored. The Project Review Group should review and approve this list to ensure all meaningful buses are monitored.
- 4. Important path flows should be monitored and listed in this section. The Project Review Group should review and approve this list to ensure that all meaningful paths are being monitored.

5.5.3. Stability Guidelines

Stability studies should be performed as needed to establish the stability transfer limit and to ensure system stability following a critical fault on the system. These studies would facilitate the development of the dynamic voltage support requirements.

Fault Damping

Three phase fault damping should be applied according to the appropriate operating agent's guidelines.

2. Machine Representation

- a. Representation of generators in the WECC Transient Stability Program should be consistent with available generator data modeled in current WECC base cases. Machines greater than 20 MVA should be represented.
- b. The power system stabilizers that are normally in service within the WECC system should be modeled for the appropriate case selected.

System Disturbance

System disturbances for stability studies should be initiated by a three-phase-to-ground fault on the EHV bus adjacent to the major interconnection point and/or power plant of interest. A single line-to-ground fault should be studied as a sensitivity if requested by the Project Review Group. The list of

outages to be studied should be agreed upon by the Project Review Group and listed in the report.

4. Fault Clearing Time

- Faults on the transmission lines being evaluated will be cleared in accordance with guidelines provided by the appropriate members of the Project Review Group.
- b. Backup clearing time for stuck breaker operation will be provided by the appropriate members of the Project Review Group.

5. Series Capacitors

Particular attention should be paid to modeling the correct performance of series capacitors. The protective schemes (i.e., bypass arc gaps, zinc oxide varistor) on the series capacitors vary widely and consequently can affect the system performance differently. The series capacitors should be modeled as they will perform in actual use.

6. Evidence of System Stability

The system will be considered stable if the following conditions are met:

a. Machine Synchronism

All machines in the system remain in synchronism as demonstrated by the relative rotor angles.

b. System Damping

A stability simulation is deemed to exhibit positive damping if a line defined by the peak of the machine relative rotor angle swing curve will intersect a second line connecting the valley of the curves with an increase in time. Corresponding lines on bus voltage swing curves will also intersect with an increase in time. Duration of a stability simulation is ten seconds unless a longer time is required to ascertain stability.

c. Transient Voltage Criteria

- Major transmission bus voltages and machine terminal voltages should meet the appropriate guidelines following the disturbance. The Project Review Group should review and approve a list of the buses to be monitored.
- System transient voltage performance must meet the WECC Reliability Criteria as a minimum.

d. Stability Plot List

A standardized stability plot list should be included with the study plan. This list should be approved by the Project Review Group to ensure all meaningful quantities are monitored.

5.5.4. Post-transient Governor Power Flow Study

Post-transient power flow analysis should be done when requested by the Project Review Group. This analysis should be consistent with "Voltage Stability Assessment Methodology" and "Voltage Stability Criteria, Undervoltage Load Shedding and Reactive Reserve Monitoring Methodology" documents. The analysis should demonstrate conformance of the Plan of Service with the NERC/WECC Planning Standards.

5.5.5. Remedial Actions

All remedial action schemes (RAS) required to obtain the Accepted Rating should be described in detail and modeled as they will be applied in operation.

5.6. Documentation of Study Conclusions

The purpose of the Project Review Group Phase2 Project Rating Report is to document the study results and conclusions and to demonstrate how a project affects the overall system performance as defined by WECC requirements. The report should demonstrate conformance with WECC Reliability Criteria.

The report documenting the Accepted Rating should also provide a general background about the existing system or project. The background could include historical information, a general project description, project need and use, and project participation.

The content of the Phase 2 Rating Report is detailed in Project Rating Review Process.

6.0 Process Scenarios

6.1. Fast Track Project

The following process scenarios are intended to provide guidance on how a project sponsor could proceed through the rating process for projects of various complexities.

6.1.1. Phase 1

- Member A has conducted internal studies and determined that installing a
 generation shedding scheme will increase the Accepted Rating of its
 path. The lead time to order and install the necessary equipment is 3
 months.
- 2. One month later, member A completes additional studies and submits a comprehensive report to all TSS, PCC and OC members announcing the proposed increase in rating of its path. The cover letter advises TSS, PCC, and OC members of member A's desire to expedite the process and requests expressions of interest in joining a Project Review Group. Since the equipment will be installed within three months, Member A should also copy these notices to members of the Compliance Monitoring and

- Operating Practices Subcommittee (CMOPS) and the Technical Operations Subcommittee (TOS) to facilitate the review process.
- 3. The project has entered and remains in Phase 1.
- During the 60-day period, there are no comments on the proposed rating or expediting the process and no expressions of interest in a Project Review Group.

6.1.2. Phase 2

Since all requirements to enter Phase 3 have been met, this project proceeds directly from Phase 1 into Phase 3. Member A notifies the PCC Chair that all requirements to enter Phase 3 have been met.

6.1.3. Phase 3

- The PCC Chair, upon determination that the project has met all
 requirements to enter Phase 3, notifies all TSS, PCC and OC members
 that the project has entered Phase 3, and that the comprehensive report is
 considered to be the Phase 2 Rating Report. The project has an Accepted
 Rating.
- If member A has installed the necessary equipment, the new Accepted Rating can be used immediately - 60 days after submitting its report and notifications to WECC.

6.2. Project with Minor Comments

6.2.1. Phase 1

- Member A lists a new transmission line in the "Existing Generation and Significant Additions and Changes to System Facilities." The Project is now in Phase 1.
- 2. After a period of time (no time limit given), member A submits a Comprehensive Progress Report to all TSS, PCC and OC members with a letter requesting Phase 2 status. The Report includes a full project description suitable for modeling the project in WECC base cases. The cover letter also requests expressions of interest in a Project Review Group (hoping there will be no interest).
- The Report shows no criteria violations at the Planned Rating and details how the project will curtail to maintain the Accepted Rating of an existing path with a known simultaneous rating conflict.
- 4. Within the 60-day review period, member B requests that some additional contingencies in member A's system be studied, and that the voltage and frequency at several of B's load buses be monitored.
- 5. Member A conducts the requested studies, provides the study results to member B and requests confirmation within a reasonable time frame that they have no objections to the Planned Rating.

- 6. Member B confirms within the stated time period that they are satisfied and do not express an interest in joining a Project Review Group.
- No other members express an interest in forming a Project Review Group.

6.2.2. Phase 2

Since all requirements to enter Phase 3 have been met, this project proceeds directly from Phase 1 into Phase 3. Member A notifies PCC and TSS members that the project's Comprehensive Progress Report is considered to be the Phase 2 Rating Report and that the project has met all requirements to enter Phase 3. PCC will have 30 days to comment regarding conformance with these procedures.

6.2.3. Phase 3

Based on the resolution of all comments, and no interest in formation of a Project Review Group and no comments from PCC, the PCC Chair notifies PCC and TSS members that the project has entered Phase 3 and is granted an Accepted Rating.

6.3. Complex High Impact Project

6.3.1. Phase 1

- Member A lists a new transmission line in the "Existing Generation and Significant Additions and Changes to System Facilities." The Project is now in Phase 1.
- 2. The Regional Planning Policy Committee finds that the project conforms with the Regional Planning Guidelines.
- Some time later (no time limit given), member A submits a
 Comprehensive Progress Report to all TSS and PCC members with a
 letter requesting Phase 2 status. The Report includes a full project
 description suitable for modeling the project and it is represented in
 WECC base cases.
- 4. The Report shows no criteria violations at the Planned Rating for numerous contingencies within member A's system, and details how the project will curtail to maintain the Accepted Rating of an existing path with a known simultaneous rating conflict.
- 5. Within the 60-day review period, member B requests that some additional contingencies in member A's system be studied, and that the voltage and frequency at several of B's load buses be monitored.
- 6. Member A conducts the requested studies, and provides the study results to member B. Member A found some problems, and agrees to address those issues in Phase 2. Member A notifies the TSS Chair that the project has met all requirements to enter Phase 2.

6.3.2. Phase 2

- The TSS Chair, in consultation with the WECC Staff, verifies that all requirements have been met. The TSS Chair notifies all PCC and TSS members that the project has entered Phase 2 of the planning process and the project is conferred a Planned Rating.
- Member A writes to all members of PCC, TSS and OC, requesting
 expressions of interest in participating in a Project Review Group, and
 allows at least 30 days response time. Some interest is expressed and
 meetings are scheduled.
- 3. The Project Review Group meets several times. The members identify a number of additional studies and potential simultaneous limits that they wish addressed. Simultaneous limits are discovered and studies are continued over the next year. Member A modifies the project to partially mitigate the simultaneous limits and identifies the curtailments necessary to mitigate remaining simultaneous operating problems.
- 4. At the last meeting of the Project Review Group, all members are satisfied except for member C who feels that additional study work is required.
- 5. Member A submits a Phase 2 Rating Report to all members of TSS, PCC and OC.
- 6. No protests from the members of the Project Review Group (including member C) are received within 30 days and any PCC member's concerns regarding conformance with the procedure have been addressed. Member A notifies the PCC Chair that the project has met all requirements to enter Phase 3.

6.3.3. Phase 3

When the PCC Chair determines that all requirements for entering Phase 3 have been met, the PCC Chair notifies all TSS, PCC and OC members that the Phase 2 Rating Report has been accepted and the project has entered Phase 3. The project has an Accepted Rating.

6.4. Project With Dispute Resolution

6.4.1. Phase 1

- Member A lists a new transmission line in the "Existing Generation and significant Additions and Changes to System Facilities." The Project is now in Phase 1.
- Some time later (no time limit given), member A submits a
 Comprehensive Progress Report to all TSS and PCC members with a
 letter requesting a Phase 2 status. The Report includes a full project
 description suitable for modeling the project in WECC base cases.

- 3. The Report shows no criteria violations at the Planned Rating for numerous contingencies within member A's system.
- 4. Within the 60-day review period, member B requests that some additional contingencies in Member A's systems be studied, and that the voltage and frequency at several of B's load buses be monitored.
- 5. Members A and B agree to form a Project Review Group and address the concerns in Phase 2. Member A notifies the TSS Chair that the project has met all requirements to enter Phase 2.

6.4.2. Phase 2

- The TSS Chair, in consultation with the WECC Staff, verifies that all requirements have been met. The TSS Chair notifies all PCC and TSS members that the project has entered Phase 2 of the planning process and the project is conferred a Planned Rating.
- Member A writes to all members of PCC, TSS and OC, requesting expressions of interest in participating in a Project Review Group, and allows at least 30 days response time.
- A Project Review Group is formed and meets several times. The group members identify a number of additional studies and potential simultaneous limits that they wish addressed.
- 4. A criteria violation in member B's system is discovered under high simultaneous transfers. Member A proposes to mitigate the problem by paying for the installation of a shunt capacitor on B's system. Member B does not like the idea.
- Member A drafts a review group report proposing the shunt capacitor mitigation. After review and editing, a majority of the Project Review Group accepts the report with the shunt capacitor mitigation. Member B votes against the report.
- 6. The report is submitted to PCC with a request for Phase 3 status.
- 7. Member B files a protest within 30 days claiming the proposed mitigation is unacceptable.
- 8. PCC withholds acceptance pending resolution of B's protest. PCC raises no concerns regarding conformance with the procedure. The PCC Chair informs A and B that they must agree to resolve the dispute either between themselves, through the TSS process, or with outside assistance.
- The parties choose arbitration and accept WECC assistance in providing an arbitrator and associated support. Both parties state their cases per the process set up by the arbitrator. The arbitrator picks A's proposed resolution.
- 10. The results are sent to the PCC Chair and any PCC member's concerns regarding conformance with this procedure have been addressed,

member A notifies the PCC Chair that the project has met all requirements to enter Phase 3.

6.4.3. Phase 3

 When the PCC Chair determines that all requirements for entering into Phase 3 have been met, the PCC Chair notifies all TSS, PCC and OC members that the dispute has been resolved. The Phase 2 Rating Report is accepted by PCC, and the project enters Phase 3.

The project now has an Accepted Rating.

- 2. A and B implement the mitigation as described in the Phase 2 Rating Report.
- Member A begins commercial operation at the rating set in the Phase 2 Rating Report.

6.5. Rating Determined By Alternative Method

6.5.1. Phase 1

- Member A has conducted internal studies and determined the Proposed Rating of its flow limited path using some method other than the Maximum Flow Test (MFT).
- 2. Member A completes additional studies and submits a comprehensive report to all TSS, PCC, and OC members, announcing the Proposed Rating of its path. In the mailing, Member A includes a description of the alternative method they used and what the proposed method is intended to accomplish. The cover letter requests Phase 2 status and expressions of interest in joining a Project Review Group.
- 3. The project has entered Phase 1. During the 60-day period, the only comments received are questions about the alternative method used. Several members express interest in a Project Review Group. Since formation of a Project Review Group has been requested, questions about the alternative method will be addressed in the Phase 2 process. The project sponsor so notifies the TSS Chair.

6.5.2. Phase 2

- 1. After verification with the WECC Staff that no comments were received about the deficiency of the comprehensive report, the TSS Chair notifies all PCC and TSS members that the project has entered Phase 2 of the planning process and the project is conferred a Planned Rating.
- 2. Member A informs PCC, TSS and OC that a Project Review Group is being formed and gives details about the alternative method that will be used in the Rating Studies.

- The Project Review Group meets and all the affected parties concur that the Project Sponsor may use this method for determining the path's rating.
- 4. At the last meeting of the Project Review Group, all members are satisfied.
- 5. Member A submits a Phase 2 Rating Report to all members of TSS, PCC and OC.
- 6. No protests from the members of the Project Review Group are received within 30 days and any PCC member's concerns regarding conformance with this procedure have been addressed, member A notifies the PCC Chair that the project has met all requirements to enter Phase 3.

6.5.3. Phase 3

When the PCC Chair determines that all requirements for entering Phase 3 have been met, the PCC Chair notifies all TSS, PCC and OC members that the Phase 2 Rating Report has been accepted and the project has entered Phase 3. The project has an Accepted Rating.

7.0 Principle Scenarios

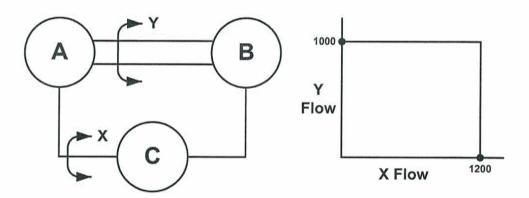
7.1. Neutrality of Path Definition

7.1.1. Principle to Illustrate:

Section 4.3.8: "When a new facility interacts with an existing path, whether the new facility is included in the path for rating purposes or remains outside of the path, it should be operationally transparent to an adjacent party (outside of either path)."

7.1.2. Existing Situation:

A and B have a rating in the A to B direction (Path Y) and have established a rating of 1000 MW on Path Y and 1200 MW on Path X.



7.1.3. Change to the Existing Situation:

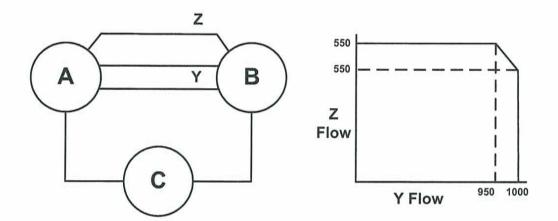
- 1. Owner D builds Line Z between B and A.
- 2. Line Z has a non-simultaneous rating of 550 MW.
- 3. From the MFT analysis it is found that the maximum possible flow across Z + Y is 1500 MW.

7.1.4. Alternative 1:

Z is combined with Y for rating purposes and the rating of the combined path under the MFT is 1500 MW.

7.1.5. Alternative 2:

- 1. Owner D does not want to include the new line with Y for rating purposes, but rather chooses to be a separate path.
- 2. Z remains a separate path and establishes a nomogram with a non-simultaneous limit of 550 MW. Z arranges with Y to keep the combined Z + Y schedule at or below 1500 MW.



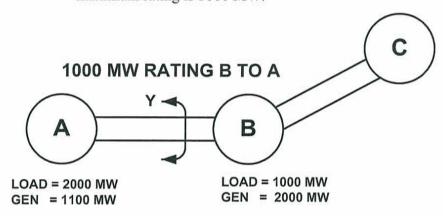
7.2. Reverse Flow

7.2.1. Concept to Illustrate:

Section 4.3.9: "It may be impossible to achieve a desired MFT if one is trying to rate a line in a direction counter to prevailing flow. Parties faced with such a circumstance could still schedule transactions over the path in the opposite direction using a net scheduling approach. Once the rating of a Transmission Path has been established, scheduled transactions over the path are permitted in either direction providing the net schedule at any time does not exceed the path rating in either direction. For example, if the path rating has only been established in one direction, schedules are still permitted in both directions as long as the net schedule is in the same direction as the path rating direction and does not exceed the path rating."

7.2.2. Existing Situation:

- 1. System A is resource deficient by 900 MW.
- 2. System B has surplus generation of 1000 MW.
- 3. System C is energy deficient at various times (primarily hydro).
- System A has a high load factor system and always imports at least 500 MW from B.
- Maximum achievable flow from B to A on Y is 1000 MW which meets Reliability Criteria. Using the Maximum Flow Test (MFT) the maximum rating is 1000 MW.



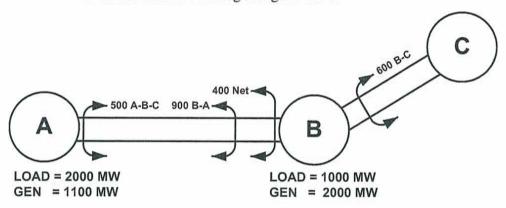
7.2.3. Change to Situation:

System D builds a 500 MW plant adjacent to system A.

7.2.4. Application of Principle:

D arranges to schedule up to 500 MW in the A to B direction as long as the net schedule is in the rated direction (B to A) and does not exceed that rating.

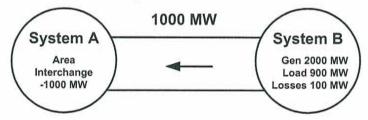
Since A is always importing, D will always have a schedule to net against. If the situation changes such that A does not import, then it will be possible to establish an A to B rating using the MFT.



7.3. Flow Limited Ratings - Flow Limited By Available Resources (Using MFT Method)

7.3.1. Principle To Illustrate:

Section 4.3.3 Accepted Rating is limited by a shortage of available resources; reliability limit not reached.



7.3.2. Existing Situation:

- System B, being resource limited, has a maximum of only 1000 MW of generation surplus to its system.
- 2. The path A-B is a two line intertie system with nominal capability of 1200 MW per line.
- 3. The outage of either line in path A-B or any other outage in system A or B does not result in a criteria violation.

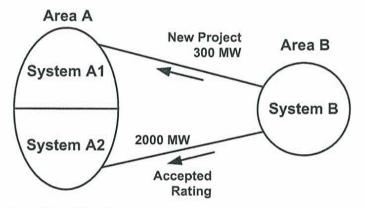
7.3.3. Application of Principle:

Path A-B is given a 1000 MW Accepted Rating although it possibly could be rated higher if more resources were available in System B. The path A-B has passed the Maximum Flow Test (MFT) and the rating achieved is called a flow limited rating and is protected.

7.4. Flow Limited Ratings - Flow Limited By Low Impedance Parallel Path

7.4.1. Principle to Illustrate:

Section 4.3.3 Accepted rating on New Project is limited by existing system reaching a limit before New Project reaches its limit.



7.4.2. Existing Situation:

The Accepted Rating of path A2-B (low impedance path) is thermally limited at 2000 MW.

7.4.3. Change to Existing Situation:

- 1. The New Project is being planned as a higher impedance path with a nominal rating of 500 MW.
- With the addition of the New Project, due to the network and location of resources, path A2-B will overload when the New Project is increased above 300 MW.

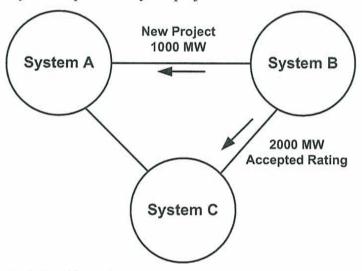
7.4.4. Application of Principle:

Path A1-B is given a flow limited Accepted Rating of 300 MW and is protected. It may be possible to uprate path A1-B in the future if a higher flow can be demonstrated after completion of appropriate studies and review.

7.5. Accepted Rating Protection - Reliability Criteria Violation

7.5.1. Principle to Illustrate:

Section 4.3.4. "A new project shall not cause a reduction in an Accepted Rating (e.g., because of a reliability criteria consideration) unless mitigated by or compensated by the project."



7.5.2. Existing Situation:

Path B-C has an Accepted Rating of 2000 MW limited by a criteria violation for contingencies on that path.

7.5.3. Change to Existing Situation:

- 1. The New Project on path A-B has completed studies and proposed a Planned Rating of 1000 MW.
- System C determines that the capability of path B-C has been reduced due to a contingency on path B-C which no longer meets the Reliability Criteria (low swing voltage in system A for example). It also shows that path B-C meets the Reliability Criteria at the Accepted Rating prior to addition of the new project.
- 3. System C claims its protected rating on path B-C has been impacted and should be mitigated.

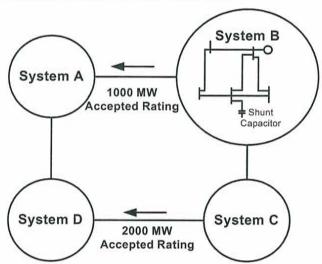
7.5.4. Application of Principle:

Path A-B must mitigate the adverse impact on path B-C by reducing the rating of path A-B or by other means (addition of shunt reactive, addition of series capacitors, etc.)

7.6. Accepted Rating Protection - Reliability Criteria Violation. Acceptable Reduction in Accepted Rating Caused By Another Party

7.6.1. Principle to Illustrate:

Section 4.3.4. "If a facility is retired from service (e.g., generator, shunt reactive equipment, Remedial Action Scheme, etc.) all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirement are not mitigated." Further, "However, if a path's Accepted Rating relied upon the facilities that are not part of the path's Plan of Service, and if those facilities are retired, modified, or never built, the Accepted Rating is subject to review in the same manner as if changes had occurred in the path's Plan of Service."



7.6.2. Existing Situation:

The Accepted rating for path B-A is 1000 MW and the Accepted Rating for path C-D is 2000 MW.

7.6.3. Change to Existing Situation:

- System B announces that it is planning to remove a shunt capacitor in its system and shows that path A-B meets the Reliability Criteria and the Accepted Rating has not changed, nor are there any Reliability Criteria violations for contingencies in System B.
- However, system C determines that the removal of the shunt capacitor in system B causes path C-D to violate the Reliability Criteria and claims that the rating should be protected.
- System B establishes that the shunt capacitor was installed before path C-D received its Accepted Rating and that the rating study relied upon that capacitor.

7.6.4. Application of Principle:

System C is not entitled to retain its Accepted Rating because of the change made by system B. In essence, system C was making use of the shunt capacitor to support its Accepted Rating on path C-D. System B is not responsible for mitigating the reduction of the Accepted Rating of path C-D.

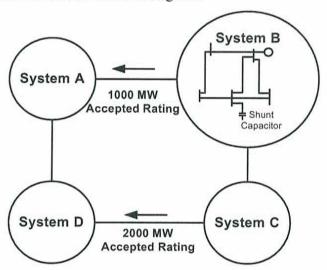
7.7. Accepted Rating Protection - Reliability Criteria Violation. Retention of Accepted Rating for Facility Removal by Another Party

7.7.1. Principles to Illustrate

Section 2.3: "Transmission paths shall complete the path rating process specified in this procedure and obtain an Accepted Rating if any of the following criteria apply:

4. A facility (e.g., generator, series or shunt reactive equipment, Remedial Action Scheme, etc.) that an Accepted Rating depends upon is retired from service, whether the facility is owned by the same system as the rated path or not.

Section 4.3.4. "However, if a facility is retired from service (e.g., generator, shunt reactive equipment, Remedial Action Scheme, etc.) all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirement are not mitigated."



7.7.2. Existing Situation

The Accepted Rating for path B-A is 1000 MW and the Accepted Rating for path C-D is 2000 MW.

7.7.3. Changes to Existing System

 System B announces that it is planning to remove a shunt capacitor in its system and shows that path A-B meets the Reliability Criteria and the Accepted Rating has not changed, nor are there any Reliability Criteria violations for contingencies in System B.

- 2. However, system C determines that the removal of the shunt capacitor in system B causes path C-D to violate the Reliability Criteria and claims that the rating should be protected.
- 3. System C establishes that system B installed the shunt capacitor as part of the plan of service for path A-B, as documented in the Phase 2 Rating Report.

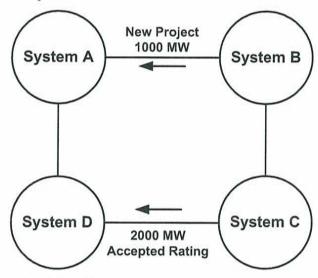
7.7.4. Application of Principle

System B must mitigate the Adverse Impact on path C-D by reducing the rating of Path A-B or by other means (retention or replacement of the shunt capacitor, etc.).

7.8. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) Retention of Accepted Rating as a Result of Changes Made By Another Party

7.8.1. Principle to Illustrate:

Section 4.3.4. "A transmission path's Accepted Rating will not be lowered because its maximum achievable flow is reduced due to system changes made by others..."



7.8.2. Existing Situation:

Path C-D has an Accepted Rating of 2000 MW and is limited by the Maximum Flow Test (no Reliability Criteria violation).

7.8.3. Change to Existing Situation:

- 1. The New Project on path B-A proposes a Planned Rating of 1000 MW. Phase 2 studies show acceptable performance.
- System C determines that the maximum achievable flow on path C-D has been reduced to a maximum of 1500 MW due to the New Project.
 System C also shows that prior to the New Project it could load path C-D to its Accepted Rating of 2000 MW.

7.8.4. Application of Principle:

Path C-D retains the protection for its Accepted Rating of 2000 MW. The New Project on path B-A gains an Accepted Rating of 1000 MW. The Simultaneous limit is 2500 MW. By the time the New Project commences operation, the owners of path B-A and path C-D must make operating agreements to insure path C-D is kept whole in scheduling rights (2000 MW) while not violating simultaneous transfer limits between paths B-A and C-D. Alternatively, the New Project may change its plan of service to mitigate the impacts on path C-D.

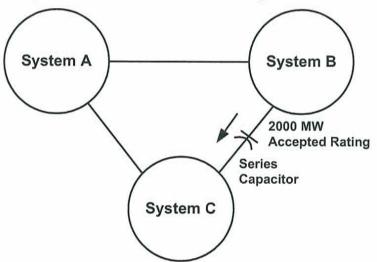
7.9. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) - Reduction of Accepted Rating as a Result of Changes Made By Path Owner/Operator

7.9.1. Principle to Illustrate:

Section 1.2: "Transmission paths shall complete the path rating process specified in this procedure and obtain an Accepted Rating if any of the following criteria apply:

4. A facility (e.g., generator, series or shunt reactive equipment, Remedial Action Scheme, etc.) that an Accepted Rating depends upon is retired from service, whether the facility is owned by the same system as the rated path or not.

Section 4.3.4. "If a facility is retired from service (e.g., generator, shunt reactive equipment, Remedial Action Scheme, etc.) all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirement are not mitigated."



7.9.2. Existing Situation:

Path B-C has an Accepted Rating of 2000 MW.

7.9.3. Change to Existing Situation:

- 1. Owners of path B-C remove the series capacitor that is part of path B-C.
- System B completes studies that show that path B-C will no longer load to its Accepted Rating.

7.9.4. Application of Principle:

The owners of path B-C re-rate their path to establish a new lower Accepted Rating.

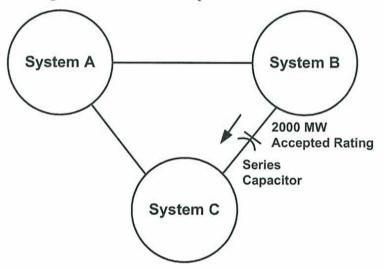
7.10. Accepted Rating Protection - Failure to Meet Maximum Flow Test (MFT) - Reduction of Accepted Rating as a Result of Changes Made By Both the Path Owner/Operator and Other Parties

7.10.1. Principle to Illustrate:

Section 1.2: "Transmission paths shall complete the path rating process specified in this procedure and obtain an Accepted Rating if any of the following criteria apply:

4. A facility (e.g., generator, series or shunt reactive equipment, Remedial Action Scheme, etc.) that an Accepted Rating depends upon is retired from service, whether the facility is owned by the same system as the rated path or not.

Section 4.3.4. "However, if a facility is retired from service (e.g., generator, shunt reactive equipment, Remedial Action Scheme, etc.) all path ratings that rely on the facility must be reviewed and reduced to the extent the System Impacts of such retirement are not mitigated." Further, "However, if a path's Accepted Rating relied upon the facilities that are not part of the path's Plan of Service, and if those facilities are retired, modified, or never built, the Accepted Rating is subject to review in the same manner as if changes had occurred in the path's Plan of Service."



7.10.2. Existing Situation:

- 1. Path B-C has a previously established Accepted Rating of 2000 MW.
- Owners of path B-C perform new studies that show path B-C will now load to only 1900 MW due to the development of parallel systems. There are no reliability problems at this flow.

7.10.3. Change to Existing Situation:

1. Owners of path B-C remove the series capacitor that is part of path B-C.

- System B completes studies that show that path B-C will load to only 1400 MW with the series capacitors removed. There are no reliability problems at this flow.
- The decrement in rating due to the removal of the series capacitors is 500 MW.

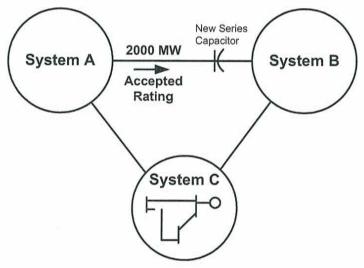
7.10.4. Application of Principle:

The owners of path B-C rerate their path to establish a new lower Accepted Rating. The owners of path B-C cannot assume the original rating of 2000 MW is still valid simply because the flow reduction to 1900 MW was not in their control (due to parallel system changes). The new Accepted Rating is 1400 MW unless 1) they can establish that the reduction was due to Adverse Impacts caused by specific actions of other systems that should be mitigated in accordance with these procedures, and 2) mitigation for the 100 MW flow reduction is implemented. (See Section 7.7.).

7.11. Accepted Rating Protection - Increase in Accepted Rating Caused By Path Owner/Operator

7.11.1. Principle to Illustrate:

Section 4.3.4. "Transmission path owners that make changes to their system that increase the flow on a path with a flow limited rating can receive a higher Accepted Rating consistent with the Maximum Flow Test."



7.11.2. Existing Situation:

Path A-B has an Accepted Rating of 2000 MW and is limited by the Maximum Flow Test (no Reliability Criteria violations).

7.11.3. Change to Existing Situation:

The owners of path A-B complete studies showing that the series capacitor they have planned to add to path A-B will increase the Accepted Rating of that path to 2500 MW.

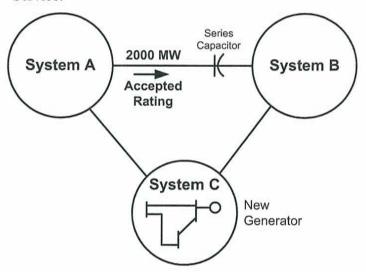
7.11.4. Application of Principle:

Path A-B owners may obtain a higher Accepted Rating for path A-B if they can demonstrate increased flow due to a project they have planned and satisfy the other requirements of these procedures.

7.12. Accepted Rating Protection - Increase in Accepted Rating Caused By Another Party

7.12.1. Principle to Illustrate:

Section 4.3.4. "Transmission path owners that make changes to their system that increase the flow on a path with a flow limited rating can receive a higher Accepted Rating consistent with the Maximum Flow Test. This same principle applies if the flow on the path is increased by a project initiated by another party; although in that case, it should be recognized that the higher Accepted Rating relies upon and is subject to the operation of the other party's facilities." Further, "However, if a path's Accepted Rating relied upon the facilities that are not part of the path's Plan of Service, and if those facilities are retired, modified, or never built, the Accepted Rating is subject to review in the same manner as if changes had occurred in the path's Plan of Service."



7.12.2. Existing Situation:

Path A-B has an Accepted Rating of 2000 MW and is limited by the Maximum Flow Test (no Reliability Criteria violations).

7.12.3. Change to Existing Situation:

The owners of path A-B complete studies showing that the addition of the new generator in system C would allow an increase in the Accepted Rating of path A-B to 2500 MW.

7.12.4. Application of Principle:

Path A-B owners may obtain a higher Accepted Rating for path A-B if they demonstrate increased flow due to a project planned by another party (i.e., the new generator in system C) and satisfy the other requirements of these

procedures.	The OTC under this new	Accepted Rating	will be dependent on
the operation	n of the new generator.		

Approved by Planning Coordination Committee	March 3, 2005	
Approved by WECC Board of Directors	April 6, 2005	

Appendix A

Rating Methods Discussion and Background

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The following explanatory sections address several major issues in the transmission rating process.

The intent is to guide transmission studies toward a uniform basis for ratings.

A-1 Parallel Path Stress Levels

The nature of AC electrical networks is such that the loss of a loaded transmission line in one path impacts all parallel paths. Each parallel path will pick up a portion of the power that was flowing in inverse proportion to its impedance relative to the other parallel paths. This ability of paths to affect each other has led to the development of "nomograms" that describe the simultaneous capacity relationships between parallel paths.

The sponsor of a new rating has an obligation to address, and potentially mitigate, all criteria violations on parallel paths that are identified by affected parties. This could imply multiple studies being run with every potentially affected path fully loaded. However, that would be an unrealistic and unreasonable study burden, both on the sponsor and on the Review Group participants that are responsible for identifying problems. Therefore, WECC suggests using a screening test procedure as a minimum study requirement. Screening studies should be performed that identify all parallel paths that pick up an increment of 10% or more (based on that parallel path's rating) for an outage on the path being rated with all phase shifters in a non-regulating mode. This screening test is not intended to be used as a margin criteria nor does it imply that a change of 10% is required before mitigation is appropriate. Once these affected paths are identified, both parties (the sponsor of the new rating and the owner of the affected facility) need to jointly decide how to determine the simultaneous capability of both paths. There are several possible outcomes of this determination - no simultaneous studies are required, joint studies will be performed, the sponsor will perform the studies with input from the affected party, or the affected party will perform the studies.

The obligation of the sponsor to perform screening studies does not remove the responsibility that the owners of parallel paths have to identify for themselves the impact that a new facility or rating will have on their systems. All Members need to make a determination for themselves as to whether or not they are impacted and need to insure that proper levels of stress are represented on their Transmission Paths in all applicable studies.

A-2 Latent Capacity

Transfer capability is considered "latent" when it can be acquired by improving an existing path without adding new lines to the path. Some examples of possible improvements include:

- 1. Installing shunt devices that improve the voltage profile and/or system damping;
- 2. Placing existing unutilized equipment into service;
- 3. Implementing a remedial action scheme; or
- 4. Adding new generation.

It has been suggested that the ability to uprate a system should be protected similar to the Accepted Rating. However, several concerns arise regarding the protection of Latent Capacity. They are:

The planning process for new facilities would become extremely complicated. New
projects would have to deal not only with existing owners' rights but also with claimed
Latent Capacity rights. Planning studies would have to be done with base cases that use
fictitious devices to represent the system in an ideal state with no Latent Capacity left.

- There are no published Latent Capacity numbers. Claims to Latent Capacity would have to be demonstrated by some other procedure. This would produce an unacceptable burden of new work with little benefit.
- There are no published plans for placing future equipment in service. Planners would not know how to study future systems to ensure that no utility is negatively affected.

One of the major objectives promulgated in the rating process is that an Accepted Rating could be used in operation. Thus the principles of realism, demonstration of flow, and no use of fictitious devices have been developed. In this context, the determination of Latent Capacity violates some or all of these principles. Latent Capacity does not exist until improvements are made and therefore cannot be used in operation.

For planning, regulatory and other reasons members may find that identifying and documenting Latent Capacity would be useful. Some possible uses are:

- Knowledge of Latent Capacity may promote appropriate decisions in generator siting; facilitate Regional Planning; or assist in fulfilling transmission access requests.
- Latent Capacity that has been adequately reviewed and documented may gain expedited review if the Review Group determines that the original documentation is still applicable.

At their option, project sponsors may identify and document the Latent Capacity in the Phase 2 Rating Report.

Latent Capacity is not protected; it cannot be used in operation; and it is not recognized nor incorporated by others in their rating studies. The only means of protecting Latent Capacity is to have a committed project and pursue that project through the three stage WECC rating process.

A-3 Maximum Flow Test

The ability of a path to acquire flow within an electric system is an intrinsic property of the electric system. The actual flow on a path is a result of the impedance ratios of the transmission lines in the electric system and the circumstances of geographic load and generation patterns, phase shifter operation etc. Adverse unscheduled flow performance reflects a mismatch between scheduling practice (which is a commercial decision and from an electric point of view, arbitrary) and this intrinsic property.

The Planning Coordination Committee has decided that the rating process should include an examination of flow distributions to recognize physical properties of the system and should address potential unscheduled flow impacts, at least to some extent. A reasonable way to address unscheduled flow is to establish Transmission Path ratings at a level where no system reliability problems exist and schedules will be limited by the maximum flow that can occur on the path under realistic conditions.

The Rating Methods Task Force (RMTF) has given careful consideration to how a rating should be related to scheduled and/or actual flows. For several reasons, the group decided that ratings should be developed on the basis of actual flows rather than schedules. First, RMTF's position is that a rating should reflect a path's ability to carry flow. (The relationship between actual flow and scheduled flow is an unscheduled flow issue. Additionally, assigning path capabilities to schedules rather than actual flow actually rewards those paths that maximize unscheduled flows, thus

penalizing parallel paths.) Second, associating a rating with a schedule implies that the path should have that rating only when that particular schedule is in place. This would severely limit the usability of the rating. And third, there are too many scheduling entities and combinations of schedules that produce the same flow on a given path for it to be practical to state a rating in terms of schedules.

The RMTF has developed procedures and guidelines based on a path's ability to carry power and demonstrate adherence to the NERC/WECC Planning Standards. To prove adherence to the Criteria, the owner(s) must demonstrate through simulation that power will flow equal to the desired rating and meet all applicable Reliability Criteria.

1. Flow Limited Ratings

The rating of a non-flow controlled Transmission Path should be capped by the flow that can be achieved with realistic generation and load patterns (no use of fictitious devices or operating practices).

The suggested way to calculate a flow based rating limitation is the Maximum Flow Test (MFT). This test consists of developing a power flow test case that depicts a reasonable condition that produces a flow on the path at least equal to or greater than the proposed rating.

MFT attributes:

- A. The MFT should not use fictitious devices or have overloaded transmission facilities.
- B. Considerable latitude is allowed in the development of the test case. A load and generation dispatch pattern favorable to the rating is appropriate, if reasonable.
- C. Since the Accepted Rating is limited by the MFT, any capacity above the MFT is Latent Capacity.

2. Realistic Simulation

The RMTF believes considerable latitude is appropriate in the assumptions used to build the power flow case that sets the upper limit on the flow and the rating. The only requirement is that the case must represent a realizable geographic load and generation pattern within recognized operating procedures and be accepted by the Review Group for that path. It is acknowledged that the likelihood of the particular load/resource pattern occurring in actual system operation may be low.

In allowing this latitude, the RMTF recognizes that there may be many hours in the year when the actual load and generation distribution may not result in the actual flow approaching the rating even if the path is scheduled to its limit. This mismatch between schedule and flow does create unscheduled flow. However, the elimination of fictitious devices and capping the rating at the maximum optimistic flow that can be obtained represents an effort to address unscheduled flow issues in the planning and rating process. The RMTF realizes that this does not resolve the unscheduled flow problem, but it is a step in the right direction.

3. Alternative Methods

With the concurrence of all affected parties to a rating, the sponsor may apply some test other than the MFT to demonstrate unscheduled flow impact is within an acceptable level.

If the sponsor proposes to use some test other than the MFT they should notify PCC and explain the alternative test in sufficient detail prior to completing Phase 2.

4. Phase Shifter Operation

If a path has flow control elements, such as phase shifters, then its rating must be within the range of loading that can be achieved with realistic generation and load patterns without violating the capabilities of the devices. Also, the owner must have procedures to assure the devices will be operated consistent with the principles on which the path was rated.

5. Reverse Flow

It may be impossible to meet an actual flow test if one is trying to rate a line in a direction counter to prevailing flows. Parties faced with such a circumstance should develop a net scheduling/allocation approach. It should be remembered that, once the rating of a transmission path has been established, scheduled transactions over the path are permitted in either direction providing the net schedule at any time does not exceed the path rating. For example, if the path rating has only been established in one direction, schedules are still permitted in both directions as long as the net schedule is in the same direction as the path rating direction and does not exceed the path rating.

6. Allocation

The RMTF position that the relationship between flow and schedule is not significant to the path rating process need not be carried over into allocation determinations on lines that make up a path. Allocation of rights on a path is a commercial issue which the owners of the path may need to resolve; however, it does not affect the rating of the path. The allocation method need not bear any resemblance to the rating method.

A-4 Flow Test Exemption

A transmission path's Accepted Rating is established by determining the highest flow on the path that meets the WECC Reliability Criteria. The majority of transmission facilities in WECC have ratings that are limited by reliability constraints that will be referred to as system limited. A few EHV transmission facilities in WECC will have ratings that are limited by the highest flow on the path under realistic conditions, and are not system limited. These paths and their ratings will be referred to as flow limited. A flow limited path is restricted, not by a reliability problem, but by the impedance of the path, lack of generation, load, etc.

A path's Maximum Achievable Flow (MAF) is the highest flow that can be obtained under realistic conditions where a reliability limit is not reached. Because of system changes, the MAF may change over time; it may become less than the Accepted Rating. The following principles guide how flow limited ratings are protected:

1. Meet WECC Reliability Criteria

Having an Accepted Rating does not exempt a company from having to operate the system in a manner that meets the WECC Reliability Criteria. If it is demonstrated that a WECC Reliability Criteria violation occurs when a Transmission Path flow is less than its Accepted Rating, changes must be made to ensure the system will not be operated under those conditions. An MFT exemption applies strictly to flow limited ratings.

2. System Changes Made by Others

A Transmission Path's Accepted Rating will not be lowered because the MAF on the path is reduced due to system changes <u>made by others</u> (i.e., the path can no longer meet the MFT). The rating should not be reduced for the following reasons:

- A. Existing path owners should not incur a reduced rating due to changes made by other systems that provided no benefit to the path owner.
- B. Existing path owners did not have control of the decision to make the system changes.
- C. The system is still being operated reliably.
- D. Existing path owners and those who have rights on that path need some assurance the rating of the path will not be reduced due to changes made by others.

The potential drawback to this principle is scheduling the Path to the same level as before the system changes could presumably cause increased unscheduled flow.

3. System Changes Made by Path Owners

A Transmission Path's Accepted Rating will be lowered if its owner makes changes to the system that reduce the path's flow. The Accepted Rating will be reduced by the amount the flow was decreased. The path owner's made their decision with the knowledge the path rating would be reduced.

The potential drawback to this principle is there may be cases where an owner decides not to make an improvement to its system that would benefit the interconnected system, because the owner does not want to take a reduction in the Accepted Rating of a path. The RMTF believes these cases would be infrequent.

Remote Systems Indifferent to Path Definition

When an existing path's flow is reduced by a new parallel line, remote systems should be operationally indifferent to whether the new line is defined in or out of the existing path.

If a new project is built parallel to an existing Transmission Path, the new project's sponsor may decide not to be included in the existing path. Regardless of the sponsor's decision, the existing path will not have its rating reduced and the path rating(s) will be established in such a way that companies outside of both paths will be indifferent to whether the new project is included in the existing path or not.

A-5 Fictitious Elements

WECC has established the principle that fictitious elements are not to be used in either simultaneous or non-simultaneous rating studies.

The concept of prohibiting fictitious elements does not pertain to planned facilities, i.e., those facilities that are expected to be in-service at the time represented in the rating study. Planned facilities may be used to obtain an Accepted Rating however, that rating may only be used when those facilities are in-service.

If there are changes to the planned facility's project plan or schedule, then the section on Monitoring Project Progress in Regional Planning Project Rating Review Process (Part 2B

of this document) will apply as if the change was made to the facility being rated. It may be required to repeat or update the requirements for Phase 2 of the rating process.

For example, a company that is building a new transmission line may use rating studies that include a future generator. If the generator is delayed, it may be necessary to repeat the rating studies to obtain a new Accepted Rating without the generator and/or to establish the Accepted Rating at the new in-service date of the generator.

Fictitious elements are facilities or operation procedures used in rating studies that are modeled unrealistically or that do not exist. Examples of fictitious elements are:

- Generators (e.g., a generator that does not exist at time of rating)
- Load (e.g., unrealistic load conditions)
- Lines (e.g., change to the impedance of a line)
- Phase shifters (e.g., unplanned phase shifter or operation beyond its physical capability)
- Shunt elements (e.g., add a non-existent SVC)
- Series elements (e.g., add unplanned series capacitors to a line)
- Opening/switching lines (e.g., open a line that is normally closed)
- Remedial action schemes (e.g., institute a scheme with no agreement from the provider)

Fictitious elements may change and distort study results. At one extreme, fictitious elements may have little or no effect on the resultant ratings, and thus need not be represented. At the other extreme, they may grossly exaggerate the capability of the path being rated, either in terms of ability to meet the performance criteria or to increase the flow limit of the path.

Because the intent of the rating process is to develop an Accepted Rating that can be used in operation, it is necessary to reject the use of fictitious elements in rating studies. The Accepted Rating that is granted by the rating process can only be used when all facilities that were represented in the rating studies are in-service.

The prohibition against the use of fictitious elements does not apply to reporting of Latent Capacity. Because the determination and reporting of Latent Capacity is strictly for information purposes, the owners may model the system in whatever manner they choose.

A-6 System Representation

One of the objectives of the rating methods is to allow WECC members to establish accurate, fair and equitable ratings. System representation, the way transmission facilities, generators, etc. are modeled, plays a key role in fulfilling this objective.

For rating studies, members should use the full loop and the most recent WECC standard power flow and stability base cases in their studies. The advantages of using the standard base cases are that members are familiar with them and every system representation should have similar amounts of detail, accuracy and modeling (if the member follows the published system representation guidelines).

If a member replaces the representation of its system with a different representation (presumably with more details and more accurate data) and if the rating depends on this new representation, the member must demonstrate that the new representation is appropriate and be willing to submit the new representation to all future WECC base cases. In the unlikely event that the new representation affects the established transfer capabilities of other paths adversely, the member must resolve the adverse impacts with those whose path capabilities are affected during the Phase 2 review process.

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WECC PROGRESS REPORT POLICIES AND PROCEDURES

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1.0 Introduction

This document is intended to provide the policies and procedures for notification and reliability assessment requirements related to projects planned within the WECC electric system. WECC members are expected to be in full compliance with this WECC document on Progress Report Policies and Procedures.

2.0 Policies

Entities sponsoring new generation are Project Sponsors and may be WECC members or non-WECC members. Insofar as a non-WECC member sponsoring a generation project requests interconnection to the WECC interconnected system, the WECC member accountable for generation interconnection administration (Interconnecting Utility) shall take reasonable steps as the Interconnecting Utility to facilitate and when applicable assist in the implementation of the policies and procedures specified herein.

Projects subject to these policies and procedures include:

- All generation projects (200 MW or greater) connected to the transmission system through step-up transformers. In the context of these policies and procedures, such projects include, but are not limited to, new generation plants, generation repower or upgrades that may significantly alter the operation of the generation facilities;
- All new and upgraded transmission facilities with (voltage levels over 200 kV. Such projects
 include, but are not limited to, new transmission facilities, transmission re-designs or upgrades,
 permanent removal of existing transmission facilities, or other changes (e.g. operating
 procedures) that may significantly alter the operation of the transmission facilities;
- Any facilities below these thresholds that may have a significant impact on the reliability of the WECC interconnected electric system.

The Project Sponsor or Interconnecting Utility shall begin providing appropriate notification of projects in accordance with the procedures stated herein to WECC soon after the project sponsor has made the project public². The Project Sponsor or Interconnecting Utility is encouraged to make the project public at the earliest possible date.

The Project Sponsor or Interconnecting Utility shall perform technical studies to ensure the WECC electric system, with the project in place, meets the NERC/WECC Planning Standards, WECC Reliability Criteria, and provide comprehensive progress reports of the technical studies to WECC, in accordance with the procedures stated herein. In the event WECC members have reliability-related concerns with a project, the Project Sponsor or Interconnecting Utility shall be responsible for addressing the concerns under the auspices of WECC's Technical Studies Subcommittee (TSS) in accordance with the procedures outlined herein. Project sponsors are encouraged voluntarily to solicit interest in forming a project review group as the venue for performing the technical studies and developing the comprehensive progress report.

² A project sponsor can make a project public via trade journals, news releases, public notice in a newspaper, information released in an open public forum, issuance of a significant permit (air quality or water rights) by a government agency to the project sponsor or notification to the interconnecting utility that the project will be moving beyond the system impact study phase.

3.0 Procedures

The following procedures cover requirements for reporting project status and technical studies. The purpose of these project progress and study reports is to encourage early communication of plans and to maintain flexibility for changes during the period of advanced planning. These reports should contain enough meaningful data to stimulate constructive discussion with the intent to share information and experience with WECC members.

4.0 Progress Reports

4.1. Initial Progress Report

Soon after a project is made public, the Project Sponsor or Interconnecting Utility shall submit, in electronic form if possible, the Initial Progress Report to the WECC Technical Staff and to TSS members. The content of the Initial Progress Report will depend on the design status of the system upgrade, addition or project, but, as a minimum, should include:

- 1. A brief physical description of the project, including points of interconnection, equipment capacities and voltages, and expected ratings.
- 2. The planned operating date.
- 3. The project status, including where the project is situated in the planning process and a tentative schedule for completion.
- 4. Facility owner(s) name, a contact person including title or position, address, telephone number and e-mail address that can answer questions and comments or direct them to persons who can provide responses.

To the extent applicable, the Project Sponsor or Interconnecting Utility may want to coordinate the Initial Progress Report submittal requirements with data reporting requirements of the WECC Regional Planning Process.

4.2. Comprehensive Progress Report

At an opportune point in the project schedule (after the project is made public), that would allow meaningful opportunity for WECC member review and input to the project, the Project Sponsor or Interconnecting Utility shall submit the Comprehensive Progress Report to the WECC Technical Staff and TSS members. The Project Sponsor or Interconnecting Utility would be considered in compliance with these procedures if the Comprehensive Progress Report was submitted at a point in the project development process that would allow changes to the plan of service if so indicated by WECC member review and input.

The purpose of the Comprehensive Progress Report is to demonstrate that the project is in compliance with the NERC/WECC Planning Standards and WECC Reliability Criteria. The content of the Comprehensive Progress Report should include, as a minimum:

- 1. The requirements specified under Initial Progress Report.
- A one-line and geographic diagram of the project showing points of interconnection, metering points, adjacent path locations and control area boundaries.

- 3. A block diagram, transfer functions, equations and complete definition of the model or models needed to study the new facility using power flow and transient stability computer programs. This information is not required if the necessary model or models are already available in the WECC power flow and stability programs.
- 4. A statement describing the transfer capability associated with the project, including the impact on other systems, the impact on existing transfer path ratings, and the compliance with the NERC/WECC Planning Standards and WECC Reliability Criteria. This statement should include a declaration which indicates if the project will require (or not require) obtaining an accepted transmission path rating (or rerating).
- A description of the interconnected system conditions and or requirements on which the proposed transfer capability rating is based and/or required by the project.
- 6. Identify operating conditions including flows on key transmission lines and paths, load levels, and generation status that allow the project to operate within the guidelines defined in the NERC/WECC Planning Standards and WECC Reliability Criteria. These operating conditions must also satisfy the WECC policy requiring that studies be done to demonstrate reliable performance under specific operating conditions prior to actual operation under these specific operating conditions.
- 7. Identify potential impacts to transmission facilities including non-simultaneous ratings and simultaneous path interactions. It is not the purpose of the Report to identify mitigation measures or requirements to mitigate.
- A representative list of power flow and stability cases run that demonstrate compliance with NERC/WECC Planning Standards and WECC Reliability Criteria.
- Representative power flow outage results and stability plots that demonstrate compliance with the NERC/WECC Planning Standards and WECC Reliability Criteria.
- 10. A project milestone schedule that covers the current period through initial operation of the project. This schedule should be sufficiently detailed to allow for monitoring by the TSS members.

4.3. Supplemental Progress Reports

The Project Sponsor or Interconnecting Utility shall submit the Supplemental Progress Report to the WECC Technical Staff and TSS Chairman only on an annual basis for years in which an Initial Progress Report or Comprehensive Progress Report were not submitted. These reports are to be filed annually for projects where there have been no significant changes in plan of service, capacity, or in-service dates since the Comprehensive Progress

³ Project sponsors or responsible parties desiring to obtain an accepted path rating (or path rerating) should comply with the detailed procedure contained in the WSCC Procedures for Regional Planning Project Review and Rating Transmission Facilities document.

Report was filed. These reports also should include non-significant additions or revisions to the projects. The Annual Supplemental Progress Reports as a minimum, should include:

- The requirements specified under Initial Progress Report and any additions or changes related to these requirements.
- 2. Changes to any or all items specified under the previously submitted Comprehensive Progress Report.

In the event of major design changes or project delays that may alter a projects impact on the overall system, a complete (updated) Comprehensive Progress Report should be submitted, following the procedures for Comprehensive Progress Reports.

4.4. Review of Progress Reports

To provide a mechanism for the review of the progress reports and an assessment of conformance with WECC criteria, policies, and procedures, the following process should be used:

- The Project Sponsor or Interconnecting Utility shall submit the appropriate progress report in accordance with the respective procedure by March 1 of each year.
- 2. The WECC Technical Staff shall compile and send to all TSS members a report showing the date and status of the last Comprehensive Progress Report for the various projects and the name of the person to whom requests for this report should be sent. Also included will be a list of projects that appear in the "Significant Additions and Changes to System Facilities Report" for which no progress reports have been submitted.
- 3. Members are encouraged to review as many progress reports as possible. Comments and/or questions concerning progress reports should be directed to the person named by the project sponsor or responsible party. Copies of correspondence relating to the compliance with WECC criteria, policies, and procedures should be sent to the TSS Chairman or his designated representative.
- 4. If a progress report is not submitted or if compliance with WECC criteria, policies, and procedures is not adequately demonstrated, any reviewing member may request TSS to review the project in question by addressing a letter requesting such to the TSS Chairman. Such requests for TSS review would be expected only after extensive communication between the reviewing party and the reporting party resulting in disagreements of conformance with WECC criteria, policies, and procedures.
- If TSS review is requested, the TSS Chairman shall appoint an Ad Hoc
 committee to review the progress report in question. The Ad Hoc committee
 shall report to TSS its findings on whether or not the project in question warrants
 further review.
- 6. If further review is necessary, TSS may then request the Project Sponsor or Interconnecting Utility to provide TSS members with the necessary studies to demonstrate compliance with WECC criteria, policies, and procedures.

7. The TSS Chairman will solicit written and verbal comments from TSS members regarding their review of the progress reports and conformance of the projects with WECC criteria, policies, and procedures. The outcome of the TSS review will provide the basis of the annual TSS review of progress reports to PCC. The TSS Chairman will present results of the annual TSS review to PCC at their final meeting of year.

5.0 Informal Reports Presented at TSS Meetings

Member systems shall provide brief written or verbal informal project update reports during each TSS meeting.

The TSS chairman shall select one or more major projects of current interest to TSS members to be reported on at each TSS meeting. These more formal presentations should be no longer than 15 minutes each, with additional time allowed for questions and answers. The presentations can be oral and/or written and should contain as a minimum:

- 1. Map showing location, ownership and voltage.
- 2. Schematic diagram including major equipment ratings.
- 3. Area load, generation, and interchange schedules used in technical studies.
- 4. Transfer capability associated with the project and/or effects on other transfer capabilities.
- Demonstrate compliance with the NERC/WECC Planning Standards and WECC Reliability Criteria.
- 6. A description of the interconnected system conditions and/or requirements on which the proposed transfer capability rating is based and/or required by the project.

Approved by Technical Studies Subcommittee			
Approved by Planning Coordination Committee	March 3, 2005		

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Mountain States Transmission Intertie ("MSTI")

Regional Planning Project Report

January 31, 2008

Project Description

The Mountain States Transmission Intertie ("MSTI") proposed by NorthWestern Energy ("NWE") is a 500 kV project from southwest Montana to southern Idaho. The northern terminus of MSTI will tie into NWE's existing 500 kV system near Townsend, Montana. The southern terminus of MSTI will be located at the existing Midpoint substation in southern Idaho. The project will likely include a new 500 kV substation located near Mill Creek. MSTI will utilize a phase shifting transformer to control power flow. (See Figure 1.)

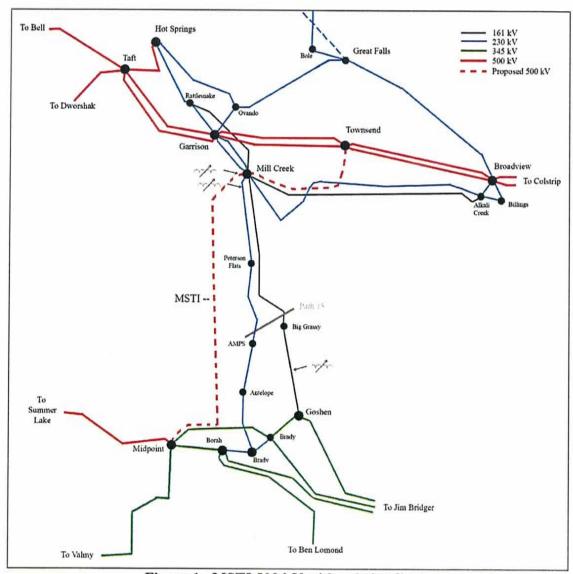


Figure 1. MSTI 500 kV with existing lines.

The route shown in Figure 1 is one of several proposed routes currently under review.

Regional Planning Process

MSTI is one of the Northern Tier Transmission Group's ("NTTG") Fast Track projects. The NTTG Fast Track projects are identified where there is a clear near-term need for transmission. The Fast Track projects account for regional load growth and planned generation projects. Figure 2 identifies the NTTG Fast Track projects.

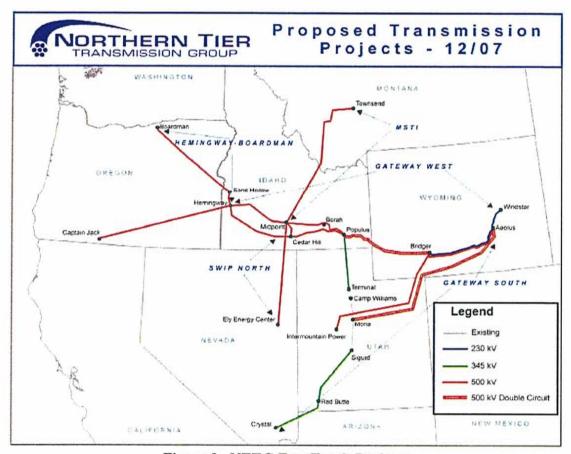


Figure 2. NTTG Fast Track Projects

Each of the NTTG fast track projects will proceed through the WECC Three-Phase Path Rating Process, and develop project-specific reports.

2009 Budget Request

Meriwether Road Compressor Station

Funding: \$

The addition of this compressor station will allow NWE to meet expected future gas loads to Kalispell by boosting the gas pressure from the Carway line into the Kalispell line and Blackfoot Loop line. This station will be fully automated and provide increased flexibility to automatically switch gas flows to and from the Carway line and the Cut Bank-Carway line.

In addition to the compression, gas measurement and water content monitoring will be installed on the Carway line at this compressor site. There is currently neither of these on the gas feed from Carway into our system.

The existing valve manifold is below ground in a vault. A new above ground valve manifold will be installed, which will eliminate this problematic confined space.

This budget item will cover the cost of two new compressor buildings each housing one 630 HP Caterpillar G3508TALE reciprocating engine driving an Ariel JGJ-4-1 reciprocating compressor, a new ESD/fuel gas building, a new auxiliary building which will house the boiler and electrical/electronic controls, a new measurement building, and a new valve manifold building.

WECC Regional Planning Guidelines

This report is intended to address each of the eleven guidelines outlined by WECC:

- Take multiple project needs and plans into account, including identified utilities' and non-utilities' future needs, environmental and other stakeholder interests;
 - a. There is very limited southbound access by generation and load customers between Montana and Idaho via Path 18 since this path is fully subscribed today. This congestion will continue into the future.
 - b. MSTI will serve the needs of existing and future Montana generation and customers:
 - NWE balancing area is exporting power most of the time because the amount of generation is about double the load within the balancing area.
 - The amount of proposed new generation in NWE's interconnect and transmission service request queue is about equal to the amount of existing generation that is operational today.
 - iii. In an effort to expand the opportunities for these proposed generation sources, NWE conducted an open season solicitation to move power south out of Montana to Idaho. NWE received a number of Transmission Service Requests ("TSR") through this open season solicitation process.
 - These TSRs are from existing and potential new generation sources in Montana seeking export opportunities to customers in the regions south of Montana.
 - v. MSTI will enhance access to major Northwest load centers as the amount of generation in NWE's Balancing Area increases and as Montana to Northwest (Path 8) congestion increases. MSTI, combined with other NTTG projects can provide export opportunity to the Northwest.
 - c. MSTI will serve the need for generation outside of Montana.
 - MSTI will enhance the arbitrage opportunity between generation outside Montana and loads inside or outside Montana.
 - ii. MSTI improves the ability of Pacific Northwest generation to flow through Montana to Idaho providing an alternative path (in addition to Path 18).

- The opportunity to move power from Montana south into Idaho is limited today since Path 18 (Montana to Idaho) is fully subscribed.
- MSTI will enhance the opportunity for power transfers between Alberta and Idaho (and further south) through the MATL transmission line.
- MSTI permitting and siting analysis includes all of the important environmental impacts (i.e. Right Of Way).
- e. MSTI line design includes a plan to minimize transmission losses.
- Cooperate with others to look beyond specific end points of the sponsors' project to identify broader regional and sub-regional needs or opportunities;
 - a. MSTI is part of the NTTG sub-regional planning process. The NTTG projects fulfill important sub-regional needs.
 - NTTG members consist of Deseret Power Electric Cooperative, Idaho Power, NorthWestern Energy, PacifiCorp, and Utah Associated Municipal Power Systems.
 - ii. The NTTG projects include the following:
 - i. Gateway West
 - ii. Gateway South
 - iii. TransWest Express
 - iv. MSTI
 - v. Hemingway to Boardman Transmission Project
 - vi. SWIP north
 - b. The NTTG projects serve a broader regional (i.e. WECC) purpose. These projects allow access to new generation in Montana and Wyoming, which are intended to serve the growing loads in Utah, Idaho, Nevada, California, Oregon and Washington.
 - c. MSTI provides significant opportunity for customers, utilities and states to gain access to Montana renewable sources of power to fulfill their required renewable portfolio standards (RPS).
 - 3. Address the efficient use of transmission corridors (e.g., rights-of-ways, new projects, optimal line voltage, upgrades, etc.);
 - a. The scale of potential generation in Montana suggests that 500 kV is the optimal voltage to handle the expected loading.
 - b. MSTI parallels Path 18 for part of the route; however, Path 18 cannot economically be upgraded to higher voltage and still serve the local community loads in southwest Montana and eastern Idaho.
 - c. The MSTI Right Of Way will parallel existing infrastructure (roads, transmission lines, etc.) when possible.

- d. The corridor between Montana and Idaho that MSTI will traverse is part of the West-wide Energy Corridor Programmatic EIS¹
- Identify and show how the project improves efficient use of, or impacts existing and planned resources of the region (e.g., benefits and impacts, transmission constraint mitigation);
 - a. MSTI relieves existing congestion on NWE's three paths Path 8 (Montana to Northwest), Path 18 (Montana to Idaho), and to some extent Path 80 (Montana to Southeast) south to north.
 - MSTI may reduce the amount of generator tripping for some of the worst contingencies in Montana. This benefit applies to both new and existing generators.
 - MSTI also enables other transmission projects (e.g. Montana-Alberta Tie Line or "MATL") to access additional markets.
 - d. MSTI may reduce severity of other 500 kV contingencies outside NWE's balancing area. Some of these contingencies are:
 - i. Idaho: Midpoint-Summer Lake
 - Pacific Northwest: Any 500 kV outage between Garrison and Coulee/Lower Monument
 - e. MSTI provides a path between proposed Montana generation, and load growth south of Montana.
 - f. The RMATS study identified significant regional benefit by reliving the congestion between Montana and Idaho, thereby providing customers access to low cost generation within Montana.
 - g. MSTI will relieve the Montana to Idaho (Path 18) congestion identified in the 2006 DOE Congestion Study.
- Cooperate with Regional Planning Review Group members in determining the benefits and impacts due to the project;
 - The benefits of the MSTI project are self-determined by the customers who are participants in NWE's open season solicitation.
 - The TSR's resulting from the open season process includes cost/benefit analysis by the TSR authors based on exploratory pricing suggested by NWE.
 - c. See Guideline #4 above for other benefits and impacts.
- 6. Identify transmission physical and operational constraints resulting from the project or that are removed by the project;
 - a. NWE's studies revealed the following constraint reductions.
 - Path 18 (North to South) constraints will be reduced by MSTI.

¹ Draft Corridors, November 2007.

- Path 8 (East to West) constraints will be reduced by MSTI.
- Path 8 (West to East) constraints will not be evaluated at this time. Additional eastbound Path 8 capability may be identified with additional study work.
- iv. South of Yellowtail constraints will likely be reduced by MSTI in combination with the other fast track projects. NWE will examine the affect on Path 80 (South to North).
- b. NWE anticipates light-load hour constraints on MSTI with simultaneous loading on Path 8. These constraints will be investigated in detail in Phase 2 of the WECC Three-Phase Path Rating Process.
- Coordinate project plans with and seek input from all interested members, sub regional planning groups, power pools, and region-wide planning group(s);
 - a. The MSTI Regional Planning Project Review Group is an open process with all information being published on NWE's OASIS for public review. In addition, regular meetings are being arranged with phone and web conferencing options provided. (See Attachment B for a list of participants in the various meeting).
 - b. MSTI is participating in the NTTG sub-regional planning process and is receiving input from participants from NTTG's Stakeholder Meetings (Salt Lake City, Boise and Portland). The NTTG subregional planning meetings are announced to the public and participation by all interested parties is encouraged.
 - c. The WECC Progress Report Policies and Procedures require that initial progress reports be filed with WECC for all major projects. The WECC TSS is provided copies of all initial progress reports. All but the most confidential of these reports are available to the public for review on the WECC web site. MSTI has provided WECC with the progress reports required by WECC policy.
- Coordinate project plans with and seek input from other stakeholders including utilities, independent power producers, environmental and land use groups, regulators, and other stakeholders that may have an interest;
 - The NTTG sub-regional planning group is coordinating all of the NTTG sub-regional projects. NTTG members include utilities, Independent Power Producers, environmental and land use groups, and regulators.
 - The MSTI Regional Planning Project Review Group is hosting an open process with all information being published on NWE's

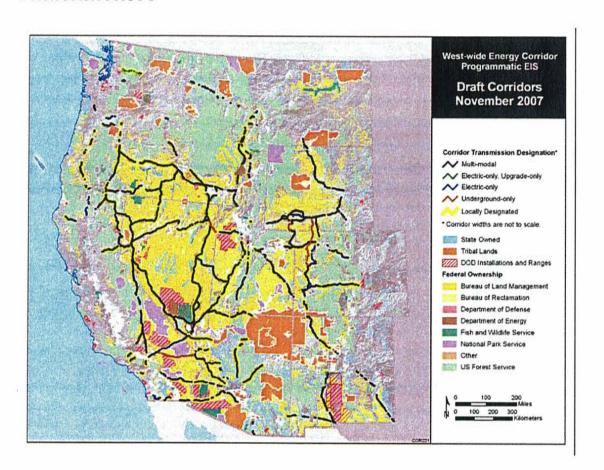
- OASIS for public review. In addition, regular meetings are being arranged with phone and web conferencing options provided.
- c. NWE has conducted open public meeting in Montana and Idaho to solicited input from interested stakeholders.
- d. Montana Major Facility Siting Act process is a regulated, public environmental review process, which MSTI will follow to get input from the public as well as State, Federal, environmental and land use groups and regulators in Montana.
- In Idaho, Federal, State and County Commission and other appropriate rights-of-way and environmental review processes will be followed.
- MSTI progress reports will be given to WECC committees such as the Planning Coordination Committee and Technical Study Subcommittee.
- Review the possibility of using the existing system, upgrades or reasonable alternatives to the project to meet the need (including nontransmission alternatives where appropriate);
 - a. MSTI represents a significant upgrade of the Pacific Northwest 500 kV system by closing an important 500 kV loop in the Pacific Northwest.
 - b. MSTI follows one of the few non-mountainous routes out of Montana to important commercial hubs near load centers.
 - c. Generation (e.g., renewables) is built where the fuel source exists and the power moved to load centers over the transmission grid. NWE is obliged under NWE's FERC tariff to provide requested transmission service for generation and wheeling customers.
- Indicate that the sponsor's evaluation of the project has taken into account costs and benefits of the project compared with reasonable alternatives;
 - a. Active TSR's submitted to NWE through an open season solicitation provide an indication of economic support and the benefit of MSTI. NWE is not privy to the delivered cost of energy to the market and is not required to speculate on the profitability of the energy delivered over MSTI.
 - b. Proposals for new generation to be built in Montana and load growth outside of Montana provide clear indication that additional transmission out of Montana is necessary. It is not easy to relocate generation plants or to redirect load growth to new locations; therefore, a new transmission project that moves power from generation sources in Montana to load located south of Montana is necessary.

- c. Increasing the path capacity on Path 18 by upgrading existing facilities is not practical. In addition to the MW increase in path capacity necessary to accommodate the proposed new sources, the 161 and 230 lines making up Path 18 have many intermediate stops to deliver to local load. Alternative methods of delivering to these local loads are possible, but even with these methods, Path 18 upgrades would not yield enough capacity to accommodate the open season TSR's between Montana and Idaho.
- d. Increasing the capacity of Path 8 by new line construction is not practical because limited availability exists for a new transmission line corridor. The mountainous Western Montana and North Idaho coupled with National parks, wilderness areas and tribal lands makes a new corridor impractical. (See Attachment C)
- Congestion to the west of NWE's balancing area may be problematic.
 - West of Hatwai problems would restrict expansion of Path 8.
 - Aluminum plant load in Columbia Falls cannot be relied upon to reduce Path 8 flows and reduce the affect of restrictions west of Path 8.

11. Coordinate with potentially parallel or competing projects and consolidate projects where practicable.

a. The NTTG sub-regional planning group accomplishes coordination with other projects. NWE is participating in the NTTG subregional planning group with MSTI. Any potential consolidation or economies of scale that result from the NTTG sub-regional planning process will be incorporated into the MSTI plan-ofservice as appropriate.

Attachment A



Attachment B

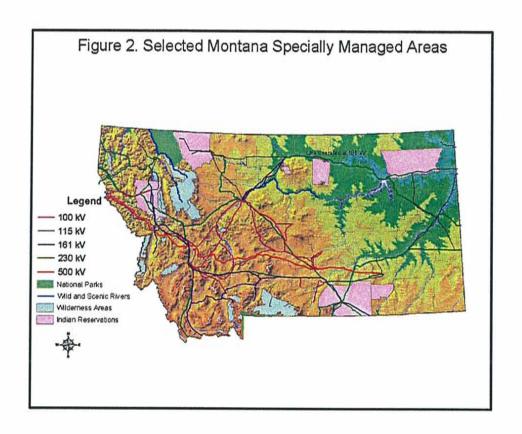
MSTI 500 kV Regional Planning Meeting Participants

Scott Waples	Avista
Rebecca Berdahl	BPA
Maifiny Vang	Calif Dept of Water
Paul Arnold	Columbia Grid
Mark Landauer	Columbia Grid
Bill Pascoe	Consultant
Shamir Ladhani	Enmax Power
Mark Hanson	Idaho Power
Tom Kaiserski	New Energy Division
Mark Mallard	NorthWestern Energy
Kathy Bauer	NorthWestern Energy
Tom Pankratz	NorthWestern Energy
Chuck Stigers	NorthWestern Energy
John Leland	NorthWestern Energy
Ryan Munson	NorthWestern Energy
Ray Brush	NorthWestern Energy
Rikin Shah	NorthWestern Energy
Sharon Helms	NTTG
Craig Quist	PAC
Edison Elizeh	Pacificorp
Jeff Miller	Pacificorp
Robert Jenkins	PG&E
Philip Augustin	PGE
Kenneth Dillon	PGE
Glen Tang	PowerEx
Jon Williamson	PPL Energy Plus
John Cummings	PPL Energy Plus
Stan Gray	RES America Development
Edi von Engein	Sierra Pacific
John Martinsen	Snohomish PUD
Joe Dooling	Sweetgrass Energy
Cindy Smith	URS
Peter Mackin	USE
Daniel Wood	USE
David Weige	Westmoreland
Samuel Kwong	Williams Power
Lorry Wilson	

Attachment C

Existing transmission in Montana utilizes lower elevation mountain passes and valleys. Locating transmission lines in mountainous areas can require construction of substantial new access road systems and because of snow accumulation, can limit access during winter months should a line fail. Figure 22 shows the distribution of national parks, wilderness areas, and wild and scenic rivers. Note that some wilderness areas (e.g., Gates of the Mountains National Wilderness Area), a primitive area (e.g., South Fork Tribal Primitive Area), and a national recreation area (e.g., Rattlesnake National Recreation Area) were designated long after transmission lines were built within their boundaries. Routing a new line through such areas may be considerably more difficult today than when existing lines were first constructed. In addition, since most of the existing lines were constructed, habitat for newly listed threatened or endangered species will play an important role in siting new transmission lines. When all these constraints and concerns are considered, few if any unconstrained options exist for siting a new line from eastern Montana is where most new generation assets will be located. This new generation will have to cause an increase in our export to markets outside Montana since the Montana area load is growing more slowly than the generation capacity.

² A Brief Overview of Selected Transmission Siting Constraints In Western Montana



PPL Energy Plus ("PPL EnergyPlus") appreciates the opportunity to comment on the 13-Feb-08 MSTI report submitted by Northwestern Energy ("NWMT") to the WECC as part of the Phase 1 final report. The technical work done by the engineering team at NWMT is excellent and the engineers should be commended for their efforts to coordinate very complex models and studies with neighboring systems.

While the technical work is helpful PPL EnergyPlus believes that several aspects of the report are unclear and provides the following questions to elicit further information that will be helpful in understanding and assessing the NWMT proposal. Specifically, PPL EnergyPlus has several questions regarding the process used to identify the "beneficiaries" of the MSTI and process that NWMT will use to ensure that all of the costs of the project are appropriately allocated to those entities that benefit from the proposed project. For ease of reference and to be consistent with the report, PPL EnergyPlus has identified each of the WECC regional planning guidelines that is relevant to PPL EnergyPlus' inquiry.

Please explain the decision to connect Mill Creek to Midpoint. Please identify any
other alternatives considered, such as connecting Mill Creek to Lower Monumental
(via energy corridors) which is nearer the MidC market hub and why such routes
were rejected.

NWE RESPONSE: The decision to connect to Midpoint is addressed in Guidelines 1.b, 1.c and 4.f of the Regional Planning Progress Report (RPPR). In addition, MSTI is being proposed to connect a new substation at Townsend Montana to the existing Midpoint Idaho substation because the transmission between Montana and Idaho (i.e., Path 18) is currently fully subscribed and NorthWestern Energy (NWE) received requests for Transmission Service to the Southern Idaho from an Open Season solicitation. MSTI is intended to meet this demand. There is no reasonable alternative to MSTI from Montana to Idaho. NWE is not aware of any transmission service requests to a Mid C delivery point, therefore a route to Lower Monumental was not considered.

2. Did NWMT consider partners like IPC, PAC, AVA and/or BPA for this project? If not, would NWMT consider such partners? The Paths 8 & 18 existing facilities are jointly owned. A similar arrangement for the MSTI could significantly reduce costs and eliminate some of the lumpiness associated with the investment in such a large line.

NWE RESPONSE: The WECC Regional Planning Guidelines do not address how NWE may choose to make arrangements for partners in the project. NWE may be open to alternative ownership arrangements.

3. PPL EnergyPlus is unclear regarding the specific process used by NWMT to identify project beneficiaries and allocate project costs to those beneficiaries. Therefore, please provide further detail on the specific process used to identify the beneficiaries of the proposed project and how costs will be allocated to each project beneficiary? As part of the regional planning process, has NWMT or NTTG held any discussions with any public utility commissions regarding the cost allocation process? If so, please provide a summary of the discussions.

Also, please describe how the proposed MSTI project will benefit the following groups. Please include in the description, the percentage of the project costs that will be allocated to each group.

NWE RESPONSE: As discussed in RRPR Guidelines 1b, 5 and 10, NWE conducted an Open Season solicitation to define interest in transmission service from Montana to Idaho. PPL participated in this Open Season solicitation. The customer benefits of the MSTI project are self-determined by the customers who are participants in NWE's open season solicitation. Guidelines 1, 5 and 10 provide a listing of the regional benefits that MSTI provides. These regional benefits were fully vetted in the MSTI Regional Planning Review Group, which PPL was a member, before submitting the RPPR to WECC. With respect to the very detailed local benefit questions, NWE formed an Open Season Participants Group in 2005 after NWE's open season to provide the open season participants a forum to address these types of specific questions. PPL has used this forum in the past to ask these types of questions, and NWE encourages PPL to bring any remaining questions to this group for discussion.

NWE is not aware of any direct communication with any PSC as part of the NTTG regional planning.

Users of MSTI will pay for transmission service through an "Enhanced Or" pricing methodology, which was filed with FERC and was accepted in December 2006. PPL and other MSTI participants were informed and were given opportunity to comment on this pricing during the MSTI participants meetings. Discussions on this pricing methodology are ongoing and are beyond the scope of the RPPR.

NWE's planning criteria that include the NERC and WECC criteria do not allow unacceptable degradation in transmission system performance for NWE's customer as a result of MSTI. In fact studies show that transmission system performance is improved with MSTI (Guideline 4.b).

- a. Colstrip generation partners with existing RAS that may need to buy replacement power and lose generation for each trip.
- b. Future generators who may charge for being designated as a RAS unit
- c. NWMT's affiliated generation at Mill Creek
- d. Current and future NWMT network customers (generation and load) who benefit from improved reliability once MSTI is in-service
- e. Current and future NWMT network customers (generation and load) that will be served by MSTI.
- f. Current and future NWMT network customers (load and wheeling) who schedule northbound transmission on MSTI.
- g. NWMT network customers (generation and load) benefiting from reliability improvements with the Townsend – Mill Creek 500 kV line in-service.

- h. Path 8 users (BPAT.NWMT and Montana Inter-tie customers) who benefit from maintaining transmission capacity out of Montana even when Path 8 transmission capacity is reduced (planned or forced maintenance, or when Western Montana Hydro is high)
- Path 18 users who benefit from MSTI when the existing Path 18 transmission capacity is reduced.
- BPA network customers in eastern Washington/northern Idaho faced with westbound congestion through Washington.
- Utilities south of Montana relying on Montana renewables to meet renewable portfolio requirements.
- 1. Members of the Columbia Grid sub-regional planning group
- m. New generators on the NWMT system.
- n. Buyers of Montana generation delivered over MSTI who are beyond the NTTG footprint.
- 4. Did NWMT involve other groups such as Columbia Grid or the NWPP in the planning process? Does NorthWestern intend to solicit input from these groups in the planning process?

NWE RESPONSE: Yes, NorthWestern Energy is a member of NTTG and as such has submitted MSTI to NTTG Planning Committee for inclusion in NTTG sub-regional planning. NTTG will provide coordination with other sub-regional planning entities and other NTTG member projects. Yes, NWE solicits and welcomes input from all interested stakeholders through the NTTG open public stakeholder meetings.

5. Did NWMT consider the BPA cluster study for moving 1,000 MW's from Montana to the Pacific Northwest in its MSTI economic analysis?

NWE RESPONSE: No, the purpose of the BPA cluster study was to address Transmission Service Requests across Path 8 to the Northwest. This is not interchangeable with the MSTI project that is from Montana to Idaho.



Brian Silverstein
Chair, Planning Coordination Committee
Bonneville Power Administration

(360) 418-2122 blsilverstein@bpa.gov

April 23, 2008

PLANNING COORDINATION COMMITTEE TECHNICAL STUDIES SUBCOMMITTEE

Subject: Acceptance of Regional Planning Report for the Mountain States Transmission Intertie (MSTI)

On July 26, 2007, NorthWestern Energy (NWE) notified the Western Electricity Coordinating Council (WECC) that it was initiating the WECC Regional Planning Review Process for the NWE sponsored MSTI project.

NorthWestern Energy formed a Regional Planning Review Group (RPRG) that was open to the Public and held meetings on August 9, 2007, September 17, 2007, October 30, 2007 and December 18, 2007. Participation in these meetings included representatives from Bonneville Power Administration (BPA), Powerex, PPL Montana, Idaho Power Company, USE Inc., URS Corporation, Sweetgrass Energy, PacifiCorp, Columbia Grid, Portland General Electric and Sierra Pacific.

There is very limited access from Montana to Idaho via Path 18 since the southbound capacity is fully subscribed today. This congestion will continue into the future. NWE balancing area is exporting power most of the time because the amount of generation is about double the load within the balancing area. As the amount of generation in NWE's balancing area grows, transmission customers seeking export opportunities out of Montana will have limited access to major load centers south of Montana due to path congestion without MSTI. Active requests for Transmission Service submitted to NWE through an open season solicitation help support MSTI construction.

On February 13, 2008, the Regional Planning Project Report for the project was provided to PCC for a 30-day comment period. This comment period allowed PCC members the opportunity to review and comment on the project conformity with the Regional Planning Guidelines. PPL Montana provided NWE with comments on the Regional Planning Project Report, and NWE addressed these comments in a follow-up document. Accordingly, this letter serves as notification that the Regional Planning Project Review has been completed for the MSTI project.

Sincerely,

Brian Silverstein

Brian Silverstein

cc: Kent Bolton, WECC



Mountain States Transmission Intertie ("MSTI")

Phase 1 Comprehensive Progress Report

March 28, 2008

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Executive Summary

NorthWestern Energy ("NWE") plans to build a 500 kV transmission line approximately 460 miles long. The line, called the Mountain States Transmission Intertie ("MSTI"), will be built between Townsend, MT, and Midpoint substation in southern Idaho. MSTI will be a series compensated transmission line, with a phase shifting transformer ("PST") to control power flow.

The northern terminus of MSTI will be a new 500 kV substation called Townsend. It will tap two existing 500 kV transmission lines between the Broadview substation, and the Garrison substation. The southern terminus of MSTI will be Midpoint—an existing 500 kV substation in southern Idaho. A substation for the PST will be built at or near the existing Mill Creek substation, in southwest Montana. Series capacitors will be located at Midpoint substation, and Mill Creek substation. (See Figure 1.)

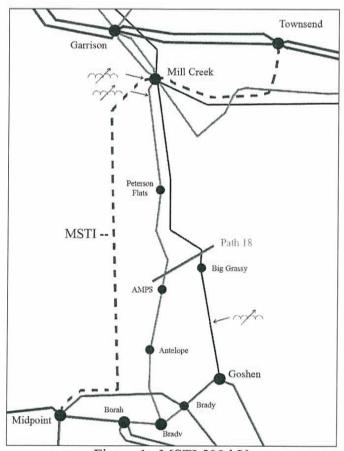


Figure 1. MSTI 500 kV

MSTI will be built to meet transmission service requests from customers, and to relieve constraints on the regions' existing transmission system. In addition, MSTI will accomplish the following:

- Improve transmission system reliability,
- · Meet the growing demand for electricity,
- · Provide regional energy diversification, and
- Develop a positive economic impact for the area.

This study was completed while following all regional planning and project rating review guidelines and requirements. The results of this study show that MSTI also meets all applicable NERC and WECC standards. MSTI has a planned in-service date of 2013. NorthWestern Energy believes that it has conformed to the guidelines in the WECC Path Rating Process.

Introduction

Regional and Sub-Regional Participation:

In an effort to address WECC guidelines, NWE is participating in the Northern Tier Transmission Group ("NTTG") Fast Track process. Through the Fast Track process, MSTI is coordinated with other regional and sub-regional projects. This helps ensure that MSTI:

- · Takes multiple project needs and plans into account,
- Cooperates with other projects to identify broader regional needs,
- Takes planned resources of the region into account,
- Seeks input from stakeholders, and
- Coordinates with potentially parallel or competing projects.

Fulfillment of Need:

This study demonstrates that the proposed MSTI 500 kV project meets all NERC and WECC Planning Standards. The Phase 1 study effort shows that MSTI fulfills the need for new transmission, and reduces existing system constraints.

Project Description

MSTI will form a 500 kV connection between southwest Montana and southern Idaho. The northern interconnection point will tap two existing 500 kV transmission lines near Townsend, MT. The southern interconnection point will be at the Midpoint 500 kV substation. An additional substation will also be built near the existing Mill Creek substation. The new Mill Creek 500 kV substation will be built to accommodate a phase shifting transformer and series capacitors.

MSTI has a proposed N-S rating of 1500 MW. Power-flow and angle stability studies show that a 1500 MW N-S rating is possible during a heavy load condition. The N-S rating can be achieved by re-dispatching generation in Montana to export an additional 1500 MW, while increasing imports in California, Nevada, and Utah.

MSTI has a proposed S-N rating of 950 MW. This rating can be accomplished during light load conditions by decreasing exports in Montana and the Northwest, while increasing generation in Utah and Wyoming.

The following items are illustrated in Figure 2.:

- Proposed path for MSTI.
- Existing high voltage transmission system.
- Paths adjacent to MSTI
- NWE's control area.
- Location of PST.

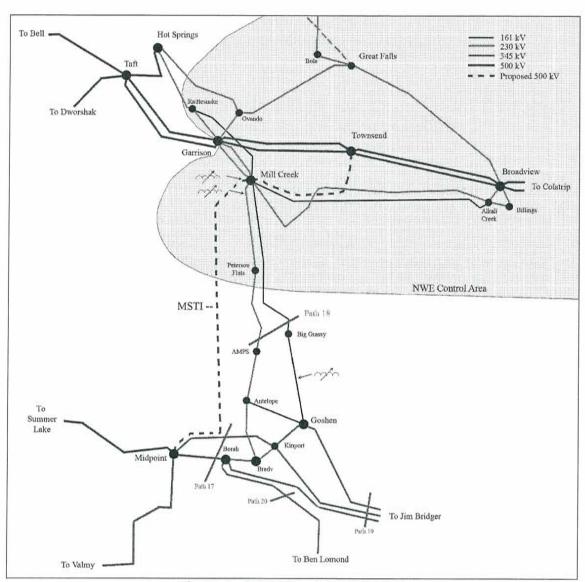


Figure 2. MSTI One-Line Diagram

Project Milestones and Timeline

MSTI Milestones:

- WECC RPP Phase 1—Start: May 17, 2007; Complete: May 27, 2008
- WECC RPP Phase 2—Start: May 20, 2008; Complete: May 31, 2009
- WECC RPP Phase 3—Start: May 31, 2009; Complete: December 31, 2012
- MFSA Application—Start: January 1, 2007; Complete: December 31, 2008
- NEPA/MEPA Scoping—Start: January 1, 2007; Complete: December 31, 2008
- EIS—Start: January 1, 2009; Complete: December 31, 2009
- ROD/ROW Grants—Start: June 1, 2009; Complete: June 1, 2010
- ROW Acquisitions—Start: January 1, 2009; Complete: December 31, 2010
- Project Engineering—Start: January 1, 2007; Complete: December 31, 2010
- Project Construction—Start: January 1, 2010; Complete: December 31, 2012
- In Service Date: 2013

Figure 3 shows a timeline for the study process.

2	007			200	8			2	009			20	10			20	11			20	12	
Q1 Q2	2 Q3 Q	4 0	21 (22	23	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
						١	ΛE	CC	Reg	ional	Plar	nning	Pro	cess	5							
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Figure 3. MSTI Timeline

Study Assumptions

Base Case Descriptions:

This study uses four base cases in various configurations:

- WECC 2015 Heavy Summer, with all NTTG Fast Track projects
- WECC 2015 Heavy Summer, with only MSTI
- · WECC 2010 Light Autumn, with all NTTG Fast Track projects
- WECC 2010 Light Autumn, with only MSTI

These four base cases provide a broad range of scenarios for this study. Both heavy load and light load scenarios are studied with and without other NTTG Fast Track projects; these different scenarios help to meet regional WECC planning guidelines. They also help determine the impact that MSTI has on the existing system as well as the impact on any future projects. The NTTG projects include the following:

- Gateway South
- Gateway West
- Idaho to the Northwest (a.k.a., Hemingway Boardman)
- Southwest Intertie Project ("SWIP")
- TransWest Express
- Hemmingway Captain Jack

Expected Operating Conditions:

The N-S proposed rating of 1500 MW was determined by using the 2015 Heavy Summer case. In order to achieve 1500 MW of flow on MSTI, generation was re-dispatched in Montana, Arizona, Utah, and California. Generation in Montana was increased by 1500 MW and decreased by 500 MW each in Arizona, Utah, and California. In order to achieve increased Montana exports, planned resources in NWE's queue were included in the base-cases. In the N-S rating cases, 1500 MW was shown to flow on MSTI with and without the other NTTG Fast Track projects.

When studying S-N flow, the 2010 Light Autumn base-case was used to determine the proposed rating of 950 MW. Generation was decreased in Montana and the northwest by 1000 MW, and increased by 1000 MW in Idaho and Wyoming. With the case dispatched as stated, the limiting element in this scenario was the angle range on the PST.

Study Methodology/Guidelines

Study Methodology

A study plan was developed and agreed to by the WECC Regional Planning Review Group. The plan can be summarized as follows:

- Power-flow contingency analysis:
 - a. The single element contingencies (i.e. N-1) listed in Appendix 3 were evaluated to screen for post-outage overloading of facilities and for unacceptable voltage performance to verify that WECC criteria were met for each outage.
 - b. The double element contingencies (i.e. N-2), also listed in Appendix 3, were evaluated to screen for post outage overloading of facilities and for unacceptable voltage performance.
 - c. A detailed study of the effects of MSTI on existing Remedial Action Schemes ("RAS") will be performed in the Phase 2 study.
- 2. Transient stability analysis:
 - a. The transient stability of the system was evaluated with MSTI at its proposed power-flow rating. Light autumn and heavy summer cases were used in the study. In the comparison of results for cases with MSTI as a stand-alone project with cases that included the other NTTG Fast Track projects it was clear that adding the other NTTG projects served to improve the system performance.
 - b. A detailed study of the effects of MSTI on existing Remedial Action Schemes ("RAS") will be performed in the Phase 2 study.
- 3. Reactive Margin Analysis:
 - a. WECC requires that all new rated paths or facilities be tested for voltage stability at 2.5% over the proposed rating for all level C contingencies and at 5% over their proposed rating for all Level B contingencies to meet the WECC standard for voltage stability.

Study Results and Conclusion

Planned Rating

This study shows that the MSTI performance is acceptable at the proposed path rating of 1500 MW North to South, and 950 MW South to North for the non-simultaneous conditions studied. Some possible simultaneous impacts that will be studied in Phase 2 include:

- Path 8 (Montana to Northwest),
- Path 17 (Borah West),
- Path 18 (Montana-Idaho),
- Path 19 (Bridger West), and
- Path 20 (Path C).

Power-Flow Results

In each base-case, flow on MSTI was increased until either 1500 MW was reached, or another limit was hit (i.e. available angle on phase shifting transformer). In both heavy summer cases, 1500 MW was achieved. In the light autumn cases, 1500 was reached with the addition of the NTTG Fast Track projects and a limit of approximately 1400 MW without the NTTG Fast Track projects. This limit of 1400 MW was because of a limitation of angle on the phase shifting transformer. After the transfer across MSTI was established, a series of post-transient contingencies were analyzed. A list of the N-1 and N-2 contingencies studied is provided in Appendix 3.

In all four cases, no thermal overloads were seen. A variety of voltage excursions were seen, but in all cases these excursions could be brought back to acceptable levels by using existing switched-shunt devices.

A summary of path flows for all four cases can be seen in the following table. Each column has a summary of values for the different base cases, including a summary of the northbound study

	2010LA N-S without Fast Track Projects	2010LA N-S with Fast Track Projects	2015HS N-S without Fast Track Projects	2015HS N-S with Fast Track Projects	2010LA S-N 950 MW
	NORTHWE	ST AREA DA	TA	(
TOTAL NW LOAD	23785.5	23785.5	26305	26305	23785.5
TOTAL NW LOSS	763.9	771.1	1241	1172.4	880

TOTAL NW INT	2010LA N-S without Fast Track Projects -6486.2 18106.2	with Fast Track Projects -6486.1		with Fast Track Projects 3157.7	2010LA S-N 950 MW -7084.5
		PATH FLOW			
	INE I INVV	FAIRITLOW	3		
NORTH OF JOHN DAY					
FLOWS	-1552.8	-1618	3219	3356.8	-1607.8
COI FLOWS	-2067.1	-2081.3	4567.9	4520.2	-3873.5
PCDC FLOWS @CELILO1&2	-739.2	-739.2	800	800	-739.2
PCDC FLOWS @CELILO3&4 BC HYDRO-NORTHWEST	-1108.1	-1108.1	1200	1200	-1108.1
FLOWS	-686.3	-687.2	2613.2	2613.5	-766.5
	МО	NTANA			
	MONTANA	A AREA DAT	A		
TOTAL MONTANA LOAD	1305.1	1305.1	1842.8	1842.8	1305.1
TOTAL MONTANA LOSS	270	267.4	282.2	278.1	167.6
TOTAL MONTANA INT	3328.6	3327.6	2805.9	2806.4	512.2
TOTAL MONTANA GEN	4904.2	4900.7	4931.7	4928.1	1941.2
	MONTANA	PATH FLOV	vs.		
MONTANA-NORTHWEST FLOW	2053.2	1911.2	845.2	775	2168.9
ALBERTA-BCHYDRO FLOW	313.5	312.8	-86.8	-86.5	225.8
GREAT FALLS SOUTH FLOW	259.9	260.4	169.4	212	-8.0
MONTANA-ALBERTA FLOW	313.3	312.9	313.2	313.5	225.8
GREAT FALLS-HILINE FLOW	21.8	21.8	32.7	32.2	21.8
AMPS FLOW (230KV 250MW)	-75.7	-89	160.9	150.3	-198.4
AMPS PST ANGLE	0	0	0	0	0
AMPS+JEFF FLOW (MTID337)	-152.1	-171.1	233.7	217.2	-331.7
JEFFERSON PST ANGLE	14	14	14	14	14
JEFFERSON PST FLOW	-102.2	-108.2	27.7	21.9	-162.5
MSTI LINE FLOWS AT TWN	1340.2	1498.1	1510.4	1516.5	954
BROADVIEW-TOWNSEND	2700000	9428000000	.01744 227024 1		
FLOW1	1537.6	1538.8	1325.4	1309.5	797.8
BROADVIEW-TOWNSEND FLOW2	1537.6	1538.8	1325.4	1309.5	797.8
BROADVIEW-JUDITHGAP FLOW	-108.8	-110	-76.2	-76	-125.4
SHOREYROAD-WILSALL	-94.3	-96.6	-61.9	-71.7	-128.4

	2010LA N-S without Fast Track Projects	2010LA N-S with Fast Track Projects	2015HS N-S without Fast Track Projects	2015HS N-S with Fast Track Projects	2010LA S-N 950 MW
FLOW					
BROADVIEW230/100 FLOW1	-8.3	-8.6	-1.2	-2.3	-10.1
BROADVIEW230/100 FLOW2	-8.5	-8.8	-1.3	-2.3	-10.3
COLUMB-RJ_WEST 161 KV	-34.7	-35.8	-25.3	-31.5	-50.3
WEST OF BROADVIEW FLOW	2820.6	2817.7	2485	2435.2	1271.2
YELLOWTAIL NORTH FLOWS	56.5	57.1	-74.4	-165.8	67.4
YELLOWTAIL SOUTH FLOWS	68.6	The state of the s		420.9	57.7
MILES CITY DC TIE FLOW	142	142	142	142	142
YELLOWTAIL GENERATION	130	130		260	130
MONTANA-SOUTHEAST FLOWS	-185.6	-186.2	-47.5	44.4	-196.5
WEST OF COLSTRIP	2668.9	2665.4	2632.5	2675.3	1075.9
WEST OF CROSSOVER	2827	2823.7	2674.9	2699.7	1233.4
MONTANA PHASE-SHIFTERS					
RIMROCK PST ANGLE	-34	-36.2	10	10	-58.8
RIMROCK PST FLOW	-34.5	-34.6	-21.5	-3	-34.5
BILLINGS PST ANGLE	-35.5	-37.7	10	10	-60
BILLINGS PST FLOW	-78.4	-78.7	-58	-2.7	-89.2
CROSSOVER PST ANGLE	-39.5	-41.8	-1.5	0	-66.3
CROSSOVER PST FLOW	57.1	56.9	156.1	173.9	57.1
MSTI PST ANGLE	-60	-60	-26.79	-38.69	60
MATL PST ANGLE	3.2	3.9	63.2	63.6	-4.4
MATL PST FLOW	-313	-312.6	-312.8	-313.2	-312.8
	MONTANA	GENERATO	RS		
MONITANIA TUEDMANI 4	200	200	222	200	
MONTANA THERMAL 1	330	330	330	330	0
MONTANA THERMAL 2	330	330	330	330	330
MONTANA THERMAL 3	805.2	801.7	807.7	803.4	367.2
MONTANA THERMAL 4	805	805	805	805	0
MONTANA THERMAL 1-4 total	2270.2	2266.7	2272.7	2268.4	697.2
MONTANA THERMAL 6	162	162	151	151	162
MONTANA THERMAL 7	39	39	39	39	39
MONTANA THERMAL 8	58	58	59	59	58
MONTANA THERMAL 9	109	109	107	107	109
MONTANA THERMAL 10	140	140	140	139	80
MONTANA THERMAL 11	80	80	80	79	80
MONTANA THERMAL 12	90	90	90	96	90

	2010LA N-S without Fast Track Projects	2010LA N-S with Fast Track Projects	2015HS N-S without Fast Track Projects	2015HS N-S with Fast Track Projects	2010LA S-N 950 MW
MONTANA THERMAL 13	250	250	250	254	250
MONTANA THERMAL 14	290	290	300	329	C
MONTANA THERMAL 15	250	250	260	248	C
MONTANA THERMAL 16	250	250	260	248	C
MONTANA THERMAL 17	0	0	0	0	C
MONTANA THERMAL 18	500	500	520	496	C
TOTAL THERMAL GEN	3738.2	3734.7	3708.7	3783.4	1315.2
MONTANA WIND 1	135	135	135	135	135
MONTANA WIND 2	340	340	370	363	C
MONTANA WIND 3	110	110	100	10	C
MONTANA WIND 4	45	45	40	48	45
MONTANA WIND 5	90	90	90	95	
TOTAL WIND GEN	720	720	735	651	180
MONTANA HYDRO 1	140	140	151	151	140
MONTANA HYDRO 2	65	65		68	65
MONTANA HYDRO 1 & 2 TOTL	205	205	219	219	205
MONTANA HYDRO 3	12	12	13	13	12
MONTANA HYDRO 4	40	40	41	41	40
MONTANA HYDRO 5	30	30	50	50	30
MONTANA HYDRO 6	4	4	4	4	4
MONTANA HYDRO 7	14	14	15	15	14
MONTANA HYDRO 8	46	46	49	49	46
MONTANA HYDRO 9	42	42	43	43	42
MONTANA HYDRO 10	38	38	39	39	38
MONTANA HYDRO 11	6	6	6	6	6
MONTANA HYDRO 3-11 TOTL	232	232	260	260	232
	IE	DAHO			
	IDAHO A	AREA DATA			
TOTAL IDAHO LOAD	1784	1784	3771.3	3771.3	1784
TOTAL IDAHO LOSS	101.5	104	184.4	162	194.1
TOTAL IDAHO INT	643.2	642.7	406	405.9	2043.2
TOTAL IDAHO GEN	2528.8	2530.7	4361.8	4339.2	4021.4
WYOMING WEST THERMAL 1	0	0	545	545	562
WYOMING WEST THERMAL 2	560	560	545	545	562
WYOMING WEST THERMAL 3	545	545	545	545	562
WYOMING WEST THERMAL 4	545	545	545	545	562
WYOMING WEST THERMAL	1650	1650	2180	2180	2248

	2010LA N-S without Fast Track Projects	2010LA N-S with Fast Track Projects	2015HS N-S without Fast Track Projects	with Fast	2010LA S-N 950 MW
	KEY IDAHO P	ATH FLOWS	(MW)		
IDAHO-NORTHWEST FLOWS	1329.3	1454.1	243.9	265.1	126.9
MIDPOINT - SUMMER LAKE	1015.2				-971.5
BORAH WEST FLOWS	441	421.3		The Assessment Control of the Contro	638.2
BRIDGER WEST FLOWS	398.4	399			507.3
PACE AREA DATA					
TOTAL PACE LOAD	6096.9	6096.9	10051.3	10051.3	6096.9
TOTAL PACE LOSS	240.4	240.2	344.5	296.7	240.7
TOTAL PACE INT	-1398.4	-1398.5	-2523.2	-2523.2	-698.4
TOTAL PACE GEN	4943.8	4943.5	7879.5	7831.9	5644.1
	KEY PACE PA	ATH FLOWS	(MW)		
PATH C FLOWS	68.7	61.7	-390	-65.6	157.1
TOT2 FLOWS	-446.1	-435.3	323.7	301.7	161.6
TOT4A FLOWS	559.2	556.7	429.8	316.5	432.5
TOT4B FLOWS	227.7	228.2	134.9	112.5	239.9

Transient Stability Results

The transient stability study revealed no problems with MSTI inserted into the existing system.

A list of the outages simulated is summarized below:

Fault Description	Line Segment Opened
3-Phase Fault at Garrison 500 kV	Garrison Taft (both circuits)
1-Phase Fault at Garrison 500 kV	Garrison Taft (single circuit)
3-Phase Fault at Garrison 500 kV	Garrison Taft (single circuit)
3-Phase Fault at Broadview 500 kV	Broadview Colstrip
1-Phase Fault at Broadview 500 kV	Broadview Colstrip
3-Phase Fault at Taft 500 kV	Taft – Bell
3-Phase Fault at Taft 500 kV	Taft Dworshak
3-Phase Fault at Townsend 500 kV	Townsend Midpoint (MSTI)
3-Phase Fault at Midpoint 500 kV	Townsend Midpoint (MSTI)

3-Phase Fault at Townsend 500 kV	Townsend Garrison (both circuits)
3-Phase Fault at Townsend 500 kV	Townsend Garrison (single circuit)
3-Phase Fault at Broadview 500 kV	Broadview Townsend (both circuits)
3-Phase Fault at Broadview 500 kV	Broadview Townsend (single circuit)
3-Phase Fault at Midpoint 500 kV	Midpoint Summer Lake

The table of results can be found in Appendix 4. The system met all WECC criteria for the outages performed. NWE intends to fully study the simultaneous path dynamics in Phase 2, as well as perform a detailed study of the Jim Bridger system with appropriate RAS action.

Reactive Margin Results

WECC requires that a path must be tested at a flow level 2.5% above the proposed rating for all level C contingencies, and at a flow level 5% over the proposed rating for Level B contingencies to test for voltage stability. For this analysis, N-S flow on MSTI was increased by 5% of its rating on a 2015 heavy summer case. A case summary can be found below:

NORTHWEST AREA DATA	
TOTAL NW LOAD	26305
TOTAL NW LOSS	1193.1
TOTAL NW INT	3157.6
TOTAL NW GEN	30698.1
KEY NW PATH FLOWS	
NORTH OF JOHN DAY FLOWS	3423.2
COI FLOWS	4528.3
PCDC FLOWS @CELILO1&2	800
PCDC FLOWS @CELILO3&4	1200
BC HYDRO-NORTHWEST FLOWS	2612.8
MONTANA	
MONTANA AREA DATA	
TOTAL MONTANA LOAD	1842.8
TOTAL MONTANA LOSS	359.2
TOTAL MONTANA INT	3006.5
TOTAL MONTANA GEN	5209.4
MONTANA PATH FLOWS	
MONTANA-NORTHWEST FLOW	927.1
ALBERTA-BCHYDRO FLOW	-87.2
GREAT FALLS SOUTH FLOW	213.1
MONTANA-ALBERTA FLOW	312.8
GREAT FALLS-HILINE FLOW	31.9
AMPS FLOW (230KV 250MW)	157.6
AMPS PST ANGLE	0
AMPS+JEFF FLOW (MTID337)	229.5
JEFFERSON PST ANGLE	14
JEFFERSON PST FLOW	26.9
MSTI LINE FLOWS AT TWN	1579.4

BROADVIEW-TOWNSEND FLOW1	1425.2
BROADVIEW-TOWNSEND FLOW2	1425.2
BROADVIEW-JUDITHGAP FLOW	-72.2
SHOREYROAD-WILSALL FLOW	-68
BROADVIEW230/100 FLOW1	-1.9
BROADVIEW230/100 FLOW2	-1.9
COLUMB-RJ WEST 161 KV	-30.2
WEST OF BROADVIEW FLOW	2676.1
YELLOWTAIL NORTH FLOWS	-197.6
YELLOWTAIL SOUTH FLOWS	452.6
MILES CITY DC TIE FLOW	142
YELLOWTAIL GENERATION	260
MONTANA-SOUTHEAST FLOWS	76.5
WEST OF COLSTRIP	2956.5
WEST OF CROSSOVER	2969.4
	2000.1
MONTANA PHASE-SHIFTERS	
RIMROCK PST ANGLE	10
RIMROCK PST FLOW	2
BILLINGS PST ANGLE	10
BILLINGS PST FLOW	13.1
CROSSOVER PST ANGLE	0
CROSSOVER PST FLOW	185.2
MSTI PST ANGLE	-60
MILL CREEK PST FLOW	-269.2
MATL PST ANGLE	62.4
MATL PST FLOW	-312.5
MONTANA GENERATORS	
MONTAIN CENERATORS	
MONTANA THERMAL 1	330
MONTANA THERMAL 2	330
MONTANA THERMAL 3	803.5
MONTANA THERMAL 4	805
MONTANA THERMAL 1-4 Total	2268.5
MONTANA THERMAL 6	200
MONTANA THERMAL 7	39
MONTANA THERMAL 8	59
MONTANA THERMAL 9	200
MONTANA THERMAL 10	139
MONTANA THERMAL 11	79
MONTANA THERMAL 12	96
MONTANA THERMAL 13	254
MONTANA THERMAL 14	329

MONTANA THERMAL 15	248
MONTANA THERMAL 16	248
MONTANA THERMAL 17	2.0
MONTANA THERMAL 18	496
TOTAL THERMAL GEN	4064.6
MONTANA WIND 1	135
MONTANA WIND 2	363
MONTANA WIND 3	10
MONTANA WIND 4	48
MONTANA WIND 5	95
TOTAL WIND GEN	651
MONTANA HYDRO 1	151
MONTANA HYDRO 2	68
MONTANA HYDRO 1 & 2 TOTL	219
MONTANA HYDRO 3	13
MONTANA HYDRO 4	41
MONTANA HYDRO 5	50
MONTANA HYDRO 6	4
MONTANA HYDRO 7	15
MONTANA HYDRO 8	49
MONTANA HYDRO 9	43
MONTANA HYDRO 10	39
MONTANA HYDRO 11	6
MONTANA HYDRO 3-11 TOTL	260
IDAHO	
IDAHO AREA DATA	
TOTAL IDAHO LOAD	3771.3
TOTAL IDAHO LOSS	164.5
TOTAL IDAHO INT	305.8
TOTAL IDAHO GEN	4241.6
WYOMING WEST THERMAL 1	545
WYOMING WEST THERMAL 2	545
WYOMING WEST THERMAL 3	545
WYOMING WEST THERMAL 4	545
WYOMING WEST THERMAL TTL	2180
KEY IDAHO PATH FLOWS (MW)	
IDAHO-NORTHWEST FLOWS	121.8
MIDPOINT - SUMMER LAKE	628.5
BORAH WEST FLOWS	272.3
	212.0

BRIDGER WEST FLOWS	2307.9		
PACE AREA DATA			
TOTAL PACE LOAD	10051.3		
TOTAL PACE LOSS	301.8		
TOTAL PACE INT	-2623.2		
TOTAL PACE GEN	7737		
KEY PACE PATH FLOWS (MW)			
PATH C FLOWS	-75.4		
TOT2 FLOWS	293		
TOT4A FLOWS	333.9		
TOT4B FLOWS	96.8		

The same N-1 and N-2 contingencies studied for the power flow analysis were run on the case with increased power flow on MSTI. This study did not reveal any thermal overloads or voltage collapse problems.

Conclusion

NWE has proposed a planned north to south ("N-S") rating of 1500 MW on MSTI. Power-flow and angle stability studies show that a 1500 MW N-S rating is reasonable and achievable on the MSTI line. Studies also show that a south to north ("S-N") planned rating of 950 MW for MSTI is reasonable and achievable. This study shows that these ratings can be achieved with no adverse effects on the existing system and in full compliance with NERC and WECC Standards.

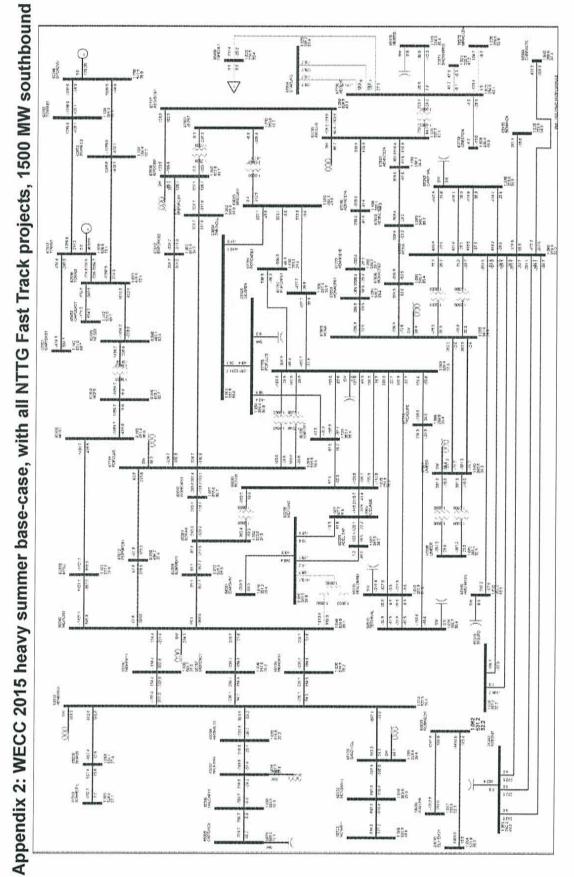
NorthWestern Energy believes it conforms to the guidelines in the WECC Path Rating Process. With this report, NorthWestern Energy expects to conclude Phase 1 of the path rating process.

Appendix 1: Contact Information

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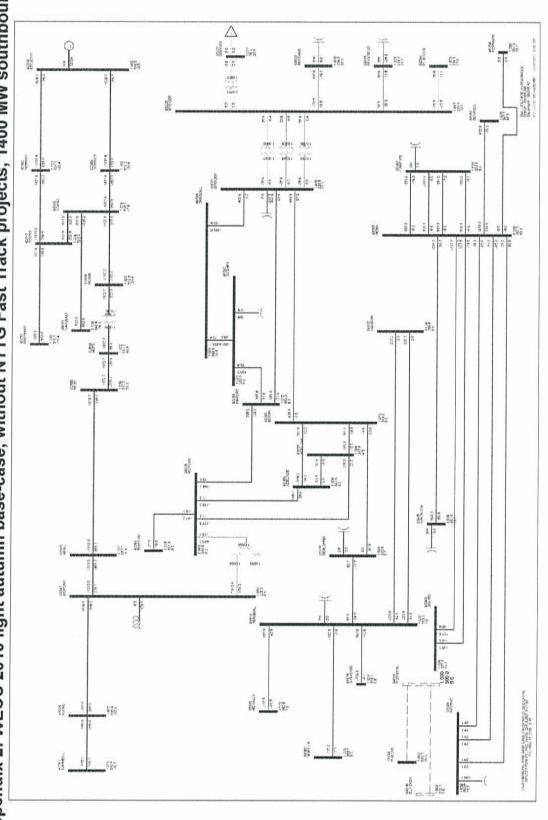
Ryan Munson Planning Engineer Electric Transmission Planning NorthWestern Energy Ryan.Munson@northwestern.com (406) 497-3213

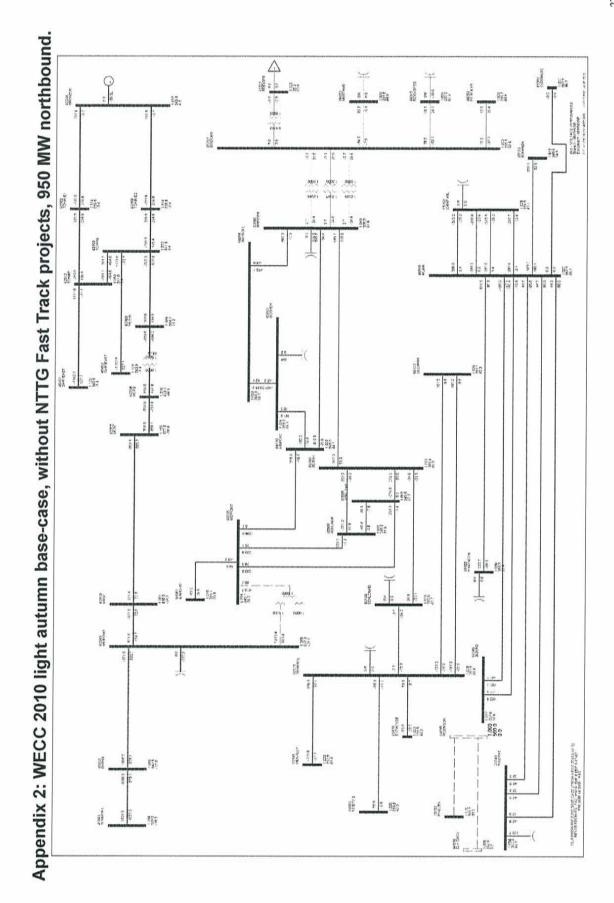




Appendix 2: WECC 2015 heavy summer base-case, without NTTG Fast Track projects 1500 MW southbound SAN SALL 1000 EX. BNS of page E 855 10 to 10 to

Appendix 2: WECC 2010 light autumn base-case, without NTTG Fast Track projects, 1400 MW southbound





APPENDIX A-4-H

Appendix 3: Power Flow Contingency List

N-1 Contingency List:

SINGLE	1	:	OPEN	LINE	FROM	BUS	60005	[ADEL TAP	345.001	TC	BUS	60006	[ADELAIDE	345.001	CKT	1
SINGLE	2		OPEN	LINE	FROM	BUS	60005	[ADEL TAP	345.00]				BORAH	345.001		
SINGLE	3	- 1					60005	[ADEL TAP	345.001			60235	MIDPOINT	345.001	CKT	
SINGLE	4		OPEN	LINE	FROM	BUS	60006	[ADELAIDE	345.001			60060	BORAH	345.00]	CKT	
SINGLE	53.55						60006	[ADELAIDE	345.001			60235	MIDPOINT	345.001	CKT	
SINGLE							60045	[BOISEBCH	230.00]			60095	BROWNLEE		201103-01101	C 532
SINGLE							60045		and the second of the second of					230.00]	CKT	(2)
		- 85						[BOISEBCH	230.00]			60095	[BROWNLEE	230.00]		100 700
SINGLE		:					60045	[BOISEBCH	230.00]			60102	[HORSEFLT	230.00]	CKT	
SINGLE							60045	[BOISEBCH	230.00]			60130	[DRAM	230.00]		
SINGLE					FROM			[BOISEBCH	230.00]			60207	[LOCUST	230.00]	CKT	
SINGLE							60045	[BOISEBCH	230.00]	TO	BUS	60232	[MIDPOINT	230.00]	CKT	83
SINGLE			OPEN	LINE	FROM	BUS	60045	[BOISEBCH	230.00]	TO	BUS	60249	HUBBARD	230.00]	CKT	1
SINGLE	13	:	OPEN	LINE	FROM	BUS	60045	[BOISEBCH	230.00]	TO	BUS	60395	[RTLSNAKE	230.00]	CKT	2
SINGLE	14	:	OPEN	LINE	FROM	BUS	60045	[BOISEBCH	230.00]	TO	BUS	60420	[PEARL ID	230.001	CKT	&1
SINGLE	15	:	OPEN	LINE	FROM	BUS	60060	[BORAH	345.00]	TO	BUS	60062	BORAH	230.00]		
SINGLE	16	:	OPEN	LINE	FROM	BUS	60060	(BORAH	345.00]			60085	BRIDGER	345.00]		
SINGLE	17				FROM				345.001				BENLOMND	345.001		
SINGLE							60062	BORAH	230.00]				BRADY	230.00]	200	77
SINGLE							60062	[BORAH	230.00]				BRADY	230.001		
SINGLE							60062	[BORAH	230.00]			60165	[HUNT	77077		7.7
SINGLE							60073						Charles Carried Indiana menangan	230.00]	CKT	177
								[BRADY	230.00]				[KINPORT	230.00]		
SINGLE					FROM			[BRADY	230.00]			60185	[KINPORT	230.00]		200
SINGLE					FROM			[BRADY	230.00]				[ANTLOPE	230.00]		
SINGLE					FROM			[BRADY	230.00]				[TREASTON	230.00]	CKT	1
SINGLE							60084	[3MIKNOLL	345.00]				[BRIDGER	345.00]	CKT	&1
SINGLE			OPEN	LINE	FROM	BUS	60084	[3MI KNOLL,	345.00]	TO	BUS	60092	[BRIDGE&B	345.00]	CKT	1
SINGLE	27	:	OPEN	LINE	FROM	BUS	60084	[3MIKNOLL	345.00]	TO	BUS	65665	[GOSHEN	345.00]	CKT	1
SINGLE	28	:	OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]	TO	BUS	60092	[BRIDGE&B	345.00]	CKT	1
SINGLE	29		OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.001	TO	BUS	60190	[KINPORT	345.00]		
SINGLE	30		OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]	TO	BUS	65220	BRIDGER	230.00]		1
SINGLE	31		OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]				BRIDGER	230.00]		2
SINGLE	32							BRIDGER	345.00]				BRIDGER	230.00]		3
SINGLE	33							BROWNLEE	230.00]				[HORSEFLT	230.00]		4
SINGLE							60095	BROWNLEE	230.001				HELLSCYN	230.00]		
SINGLE					17-717-17-18-18-18-18-18-18-18-18-18-18-18-18-18-	77.7		[BROWNLEE	230.00]				ONTARIO	230.00]		1
SINGLE								[BROWNLEE								61
SINGLE							60095	[BROWNLEE	230.00]				[OXBOW	230.00]		1
SINGLE	75.6							[#460000001110000000000000000000000000000	230.00]				[OXBOW	230.00]		2
	T3/T6							[BROWNLEE	230.00]				[QUARTZTP	230.00]		1
SINGLE							60095	[BROWNLEE	230.00]				[PEARL_ID	230.00]		
SINGLE							60110	[CALDWELL	230.00]				ONTARIO	230.00]		1
SINGLE								[CALDWELL	230.00]				[GARNET	230.00]	CKT	1
SINGLE								[CALDWELL	230.00]				[NAMPA TP	230.00]	CKT	1
SINGLE		:	OPEN	LINE	FROM	BUS	60130	[DRAM	230.00]	TO	BUS	60232	[MIDPOINT	230.00]	CKT	1
SINGLE	44	:	OPEN	LINE	FROM	BUS	60165	[HUNT	230.00]	TO	BUS	60232	[MIDPOINT	230.00]	CKT	1
SINGLE	45	:	OPEN	LINE	FROM	BUS	60190	[KINPORT	345.00]	TO	BUS	60235	[MIDPOINT	345.00]	CKT	1
SINGLE	46	:	OPEN	LINE	FROM	BUS	60190	[KINPORT	345.00]	TO	BUS	65665	[GOSHEN	345.00]		1
SINGLE	47	:	OPEN	LINE	FROM	BUS	60207	[LOCUST	230.001	TO	BUS	60400	[GARNET	230.001		1
SINGLE	48	:	OPEN	LINE	FROM	BUS	60207	LOCUST	230.001	TO	BUS	60420	[PEARL ID		CKT	1
SINGLE	49	:	OPEN	LINE	FROM	BUS	60232	MIDPOINT	230.001				MIDPOINT	345.001		1
SINGLE							60232	[MIDPOINT	230.001				MIDPOINT	345.001		2
SINGLE							60232	MIDPOINT	230.001				RTLSNAKE	230.001		62
SINGLE							60240	[MIDPOINT	500.00]				[MPSC	500.001		
	53						60249	[HUBBARD	230.00]				[HAPPYVLY	230.001		1
	54						60249									&1
								[HUBBARD	230.00]				[DANSKIN	230.00]		1
SINGLE								[HAPPYVLY	230.00]				[NAMPA TP	230.00]		&1
	56							[OXBOW	230.00]				[IMNAHA	230.00]		&1
	57							[QUARTZ	230.00]				QUARTZTP	230.00]	CKT	1
	58						60394	[DANSKIN					[BNET MTN	230.00]	CKT	1
	59							[RTLSNAKE	230.00]				[BNET MTN		CKT	1
	60							[NAMPA TP	230.00]				[NAMPA	230.00]	CKT	1,
SINGLE	61	:	OPEN	LINE	FROM	BUS	62004	[MILL CRK	230.00]	TO	BUS	62030	[PTRSNFLT	230.00]	CKT	1

SINGLE	60		ODEN	TTME	ED ON	DITE	20001	CASTET CITIES	222 221	mo	DILLO	00000	THE PARTY OF	000.001	-	
								[MILL CRK					[THRRIVER	230.00]		
SINGLE								[MILL CRK					[ANA BPA	230.00]	CKT	1
SINGLE	64	:	OPEN	LINE	FROM	BUS	62004	[MILL CRK	230.00]	TO	BUS	62355	[MLCK PHA	230.00]	CKT	1
SINGLE	65		OPEN	LINE	FROM	BUS	62004	[MILL CRK	230.001	TO	BUS	62909	[MC500	500.00]	CKT	1
SINGLE	66							[TOWN2	19/1/2000 Table 19/1/2000				TOWN E1	500.001		
SINGLE								[TOWN2						POSSES STATE		
									500.00]				[TOWN3	500.00]		
SINGLE	68							[WILSALL	230.00]	TO	BUS	62331	[THRRIVER	230.00]	CKT	1
SINGLE	69	:	OPEN	LINE	FROM	BUS	62019	[WILSALL	230.00]	TO	BUS	62378	[WKN	230.00]	CKT	1
SINGLE	70		OPEN	LINE	FROM	BUS	62026	[SHELBY	230.001	TO	BUS	62035	CNRDWAPA	230.001		
SINGLE								[PTRSNFLT								
													[MLCK PHA	230.00]		
SINGLE								[PTRSNFLT	230.00]					230.00]	CKT	1
SINGLE	7.3	:	OPEN	LINE	FROM	BUS	62034	[BOLE	230.00]	TO	BUS	62035	[CNRDWAPA	230.00]	CKT	1
SINGLE	74		OPEN	LINE	FROM	BUS	62034	IBOLE	230,001	TO	BUS	62071	[GT FALLS	230.001	CKT	1
SINGLE	75							[JUDITHGP					JUDITHSO	230.00]		
														28000 000 00000000		
SINGLE								[JUDITHGP					[STH_TAP	230.00]		
SINGLE								[BLGS PHA	230.00]	TO	BUS	62082	[BILINGS	230.00]	CKT	1
SINGLE	78	:	OPEN	LINE	FROM	BUS	62045	[BLGS PHA	230.00]	TO	BUS	66750	[YELOWTLP	230.00]	CKT	1
SINGLE	79		OPEN	LINE	FROM	BUS	62046	[BROADVU	500.001	TO	BUS	62053	[BROADV&2	500.00]		
SINGLE								[BROADVU					[BROADV&1			
														500.00]		
SINGLE								[BROADVU					[TOWN E1	500.00]	CKT	1
SINGLE	82	:	OPEN	LINE	FROM	BUS	62046	[BROADVU	500.00]	TO	BUS	62903	[TOWN E2	500.00]	CKT	2
SINGLE	83	:	OPEN	LINE	FROM	BUS	62051	[HARDIN	230,001	TO	BUS	62060	[COLSTRP	230.00]	CKT	1
SINGLE	84							[ALKALI					SHOREYRD	230.00]		
SINGLE								[ALKALI					[BILINGS	230.00]		
SINGLE	86							[ALKALI	230.00]	TO	BUS	62223	[BROADVU	230.00]	CKT	1
SINGLE	87	:	OPEN	LINE	FROM	BUS	62053	[BROADV&2	500.001	TO	BUS	62057	[COLSTRP	500.001	CKT	2
SINGLE	88							[BROADV&1					[COLSTRP	500.00]		
SINGLE								[BASELINE					SHOREYRD	230.001		
															0.055	
SINGLE								[HUNTLEY					[BILINGS	230.00]		
SINGLE	91	:	OPEN	LINE	FROM	BUS	62058	[SHOREYRD	230.00]	TO	BUS	62378	[WKN	230.00]	CKT	1
SINGLE	92	:	OPEN	LINE	FROM	BUS	62060	[COLSTRP	230.001	TO	BUS	62821	[LIGNITE	230.001	CKT	1
SINGLE	93							[COLSTRP					LIGNITE	230.00]		
SINGLE								GT FALLS								
													[OVANDO	230.00]		
SINGLE								[GT FALLS					[LANDRSFK	230.00]	CKT	1
SINGLE	96	:	OPEN	LINE	FROM	BUS	62071	[GT FALLS	230.00]	TO	BUS	62364	[MATLN &2	230.00]	CKT	1
SINGLE	97	:	OPEN	LINE	FROM	BUS	62071	[GT FALLS	230,001	TO	BUS	62500	SOUTHERN	230.00]	CKT	7
SINGLE	98							[GT FALLS					STH TAP	230.001		
SINGLE								30000000 . 10000000 UU COO66						70,000,000,000,000,000,000,000,000,000,		
								[GT FALLS					[MNTGMRY	230.00]		
SINGLE								[GT FALLS	230.00]	TO	BUS	62921	[EHELENA	230.00]	CKT	1
SINGLE	101	3	OPEN	LINE	FROM	BUS	62072	[OVANDO	230.00]	TO	BUS	62126	[LANDRSFK	230.00]	CKT	1
SINGLE	102		OPEN	LINE	FROM	BUS	62072	OVANDO	230.001	TO	BUS	62344	[PLACIDLK	230.001		
SINGLE	103							BILINGS					[BILINGSW	230.00]		
SINGLE								[JUDITHSO					BROADVU	(0) 000 1000 mpc 700		
SINGLE														230.00]		
								[BILINGSW					[BROADVU	230.00]		
SINGLE								[THRRIVER	230.00]				[EHELENA	230.00]	CKT	1
SINGLE	107	:	OPEN	LINE	FROM	BUS	62362	[MARIAS	230.00]	TO	BUS	62363	[MATLN &1	230.00]	CKT	1
SINGLE	108	:	OPEN	LINE	FROM	BUS	62362	[MARIAS	230.00]	TO	BUS	62364	[MATLN &2	230.00]	CKT	1
SINGLE	109	- 3	OPEN	LINE	FROM	BUS	62500	SOUTHERN	230.001				STH TAP	230.001	CKT	1
SINGLE								TOWN E2	500.00]				TOWN3	500.00]		
								7 3 7 Color of Color						The second secon		
SINGLE							62905	70000000000000000000000000000000000000	500.00]				[MPSC	500.00]	10000000	200
SINGLE	114	:	OPEN	LINE	FROM	BUS	62908	[TOWN3	500.00]	TO	BUS	62909	[MC500	500.00]	CKT	1
SINGLE	115	:	OPEN	LINE	FROM	BUS	65025	[AMPS	230.001	TO	BUS	65075	[ANTLOPE	230.00]	CKT	1
SINGLE	116	:	OPEN	LINE	FROM	BUS	65060	[ANT MINE						230.00]		
SINGLE	117	•	OPEN	TINE	FROM	DITE	65075	[ANTLOPE	220.001	mo	DILE	CEOLO	ITOOM DIV			
								LAMA TOLER	230.00]	10	DUD	00010	LOST RIV	230.00]		
SINGLE								[ATLANTIC	230.00]	TO	BUS	66740	WYOPO	230.00]		
SINGLE								[ATLANTIC	230.00]	TO	BUS	67553	[WIND RIV	230.00]	CKT	1
SINGLE	120	:	OPEN	LINE	FROM	BUS	65095	[BADWATER	230.00]	TO	BUS	66410	SPENCE	230.00]	CKT	1
SINGLE								[BADWATER					[THERMOPL	230.001		
SINGLE								[BAR-X								
													[BITTERCK	230.00]		
SINGLE		:	OPEN	TIME	FROM	BUS	65105	[BAR-X [BENLOMND [BENLOMND	230.00]				[CRESTON	230.00]		
SINGLE	124	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	1
SINGLE	125	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.001	TO	BUS	66476	SYRACUSE	345.00]	CKT	1
SINGLE										TO	BUS	66510	[TERMINAL	345.00]		
SINGLE								[BENLOMND								
													[BIRCH CK	230.00]		
SINGLE								[BENLOMND					[NAUGHTON	230.00]		
SINGLE								[BENLOMND	230.00]	TO	BUS	66515	[TERMINAL	230.00]	CKT	1
SINGLE	130							[BIRCH CK	THE R. P. LEWIS CO., LANSING MICH.				NAUGHTON	230.00]		
SINGLE													[RAILROAD	230.00]		
SINGLE								[BLACKSFK								
													MONUMENT	230.00]		
SINGLE								[BLACKSFK					[WESTVACO	230.00]		
SINGLE	134							[BLUE RIM	230.00]	TO	BUS	65215	[MANSFACE	230.00]	CKT	1
SINGLE	135	:	OPEN	LINE	FROM	BUS	65175	[BLUE RIM	230.001	TO	BUS	66325	SO TRONA	230.00]		
SINGLE									345.00]					345.00]		
SINGLE														230.00]		
SINGLE			OPEN	LINE	FROM	DITIO	65215	[MANSFACE [MANSFACE [BRIDGER	220.001	mo.	DITE	67606	(PRDCR DR	The Control of the Co		
			OPEN	TITIVE	EROM	DUD	05215	LPMNSTACE	230.00]	TO	BU5	67696	DKDGK PP	230.00]		
SINGLE	139	•	OPEN	TINE	FROM	BUS	65220	[BRIDGER	230.00]	TO	BUS	66020	[MUSTANG	230.00]	CKT	1

SINGLE															
	140		OPEN	LINE	FROM	BUS	65220	[BRIDGER	230 001	TO	BUS	66250	[PT ROCKS	230.001	CKT 1
SINGLE								BRIDGER							
								4 TO 100					[ROCKSPGS	230.00]	
SINGLE								[BUFFALO					[CARR DRA	230.00]	CKT 1
SINGLE	143	:	OPEN	LINE	FROM	BUS	65235	[BUFFALO	230.001	TO	BUS	65875	[KAYCEE	230.00]	CKT 1
SINGLE	144							[BUFFALO					SHERIDAN	230.00]	
SINGLE	777							[CAMPWSVC							
	120						170000000000000000000000000000000000000						[CAMP WIL	345.00]	
SINGLE	146	:	OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.00]	TO	BUS	65510	[EMERY	345.001	CKT 1
SINGLE	147		OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.00]	TO	BUS	65995	MONA	345.001	CKT 1
SINGLE								[CAMP WIL							
								75 C. T. C.	345.00]				[MONA]	345.00]	
SINGLE	149	;	OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.00]	TO	BUS	65995	MONA	345.00]	CKT 3
SINGLE	150	:	OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.001	TO	BUS	65995	[MONA]	345.00]	CKT 4
SINGLE	151							[CAMP WIL					[NINETY S	345.001	
SINGLE								[CAMP WIL					[NINETY S	345.00]	CKT 2
SINGLE	153	:	OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.001	TO	BUS	66133	[OQUIRRH	345.001	CKT 1
SINGLE	7.54		OPEN	TIME	FROM	BIIS	65260	[CAMP WIL					[OQUIRRH	345.001	
SINGLE															
								[CAMP WIL					[SPAN FRK	345.00]	
SINGLE	156	:	OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.00]	TO	BUS	66510	[TERMINAL	345.00]	CKT 1
SINGLE	157	:	OPEN	LINE	FROM	BUS	65293	[CARR DRA	230.001	TO	BUS	66725	[WYODAK	230.001	CKT 1
SINGLE								[CASPERPP					[DAVEJOHN		
														230.00]	
SINGLE								[CASPERPP					[DAVEJOHN	230.00]	CKT 2
SINGLE	160	:	OPEN	LINE	FROM	BUS	65300	[CASPERPP	230.00]	TO	BUS	66305	RIVERTON	230.00]	CKT 1
SINGLE	161		OPEN	LINE	FROM	BUS	65300	[CASPERPP	230.00]					230.00]	
SINGLE								CASPERPP							
													[CLAIMJPR	230.00]	1000
SINGLE	163		OPEN	LINE	FROM	BUS	65311	[3 PK &1	345.00]	TO	BUS	65312	[THREE PK	345.00]	CKT 1
SINGLE	164	:	OPEN	LINE	FROM	BUS	65311	[3 PK &1	345.00]	TO	BUS	66340	STGUED	345.001	CKT 1
SINGLE								[THREE PK					REDBUTTE		
														345.00]	
SINGLE	166							[CHAPPELC	230.00]	TO	BUS	65374	[CRAVENCK	230.00]	CKT 1
SINGLE	167	:	OPEN	LINE	FROM	BUS	65320	CHAPPELC	230.001	TO	BUS	66050	[NAUGHTON	230.00]	CKT 1
SINGLE	168							[CHAPPELC	230.00]				JONAHGAS	230.00]	

SINGLE	F18 5 5 5 5							[CHAPPELC	230.00]				CHMNY BT	230.00]	CKT 1
SINGLE	170	:	OPEN	LINE	FROM	BUS	65320	[CHAPPELC	230.00]	TO	BUS	67564	JONFLD	230.001	CKT 1
SINGLE	171		OPEN	LINE	FROM	BUS	65374	[CRAVENCK					MONU PST	230.001	
SINGLE															CT1000 TO 1
								[CRAVENCK	230.00]				[NAUGHTON	230.00]	100,000,000
SINGLE	173							[CURRANTC	345.00]	TO	BUS	65995	[MONA]	345.00]	CKT 1
SINGLE	174	:	OPEN	LINE	FROM	BUS	65420	[DAVEJOHN	230.00]	TO	BUS	65460	[DIFICULT	230.00]	CKT 1
SINGLE	175							[DAVEJOHN	230.00]				YELLOWCK	230.00]	
SINGLE			OPEN	LINE	FROM	BUS	65460	[DIFICULT	230.00]					230.00]	CKT 1
SINGLE	177	:	OPEN	LINE	FROM	BUS	65510	[EMERY	345.001	TO	BUS	65805	[HUNTNGTN	345.00]	CKT 1
SINGLE	178		OPEN	T.TNE	FROM	BUS		[EMERY	345.00]				SIGURD	345.00]	
													The state of the s	30 miles (000 17 miles (000 17 miles	
SINGLE								[EMERY	345.00]				[SIGURD	345.00]	
SINGLE	180	:	OPEN	LINE	FROM	BUS	65545	[EXXON WY	230.00]	TO	BUS	66010	[MONUMENT	230.00]	CKT 1
SINGLE	181	:	OPEN	LINE	FROM	BUS	65555	[FIREHOLE	230.00]	TO	BUS		[LITTLEMT	230.001	CKT 1
SINGLE															
								[FIREHOLE	230.00]				[ROCKSPGS	230.00]	
SINGLE	183							[FLAMGORG	230.00]	TO	BUS	65895	[LITTLEMT	230.00]	CKT 1
SINGLE	184		OPEN	LINE	FROM	BUS	65575	[FRANNIE	230.00]	TO	BUS	65620	[GARLAND	230.001	CKT 1
SINGLE								[FRANNIE	230.001				[YELOWTLP	230.001	
				TIME		DOD			230.00]	10					
		:	OPEN			man of the same							MINERS		
SINGLE	186	:	OPEN OPEN	LINE	FROM			[FT CREEK	230.00]					230.00]	CKT 1
SINGLE	186	:	OPEN OPEN	LINE	FROM			[GARLAND					OREBASIN	TRANSPORT TO THE PROPERTY.	
SINGLE	186 187	:	OPEN OPEN	LINE LINE	FROM FROM	BUS	65620	[GARLAND	230.00]	TO	BUS	66145	OREBASIN	230.00]	CKT 1
SINGLE SINGLE	186 187 188	: : : :	OPEN OPEN OPEN OPEN	LINE LINE LINE	FROM FROM FROM	BUS BUS	65620 65660	[GARLAND [GOOSE CK	230.00]	TO TO	BUS BUS	66145 66335	[SHERIDAN	230.00]	CKT 1 CKT 1
SINGLE SINGLE SINGLE	186 187 188 189	: : : :	OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE	FROM FROM FROM FROM	BUS BUS BUS	65620 65660 65660	[GARLAND [GOOSE CK [GOOSE CK	230.00] 230.00] 230.00]	TO TO	BUS BUS BUS	66145 66335 66750	SHERIDAN YELOWTLP	230.00] 230.00] 230.00]	CKT 1 CKT 1 CKT 1
SINGLE SINGLE	186 187 188 189	: : : :	OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE	FROM FROM FROM FROM	BUS BUS BUS	65620 65660 65660	[GARLAND [GOOSE CK	230.00] 230.00] 230.00]	TO TO	BUS BUS BUS	66145 66335 66750	[SHERIDAN	230.00]	CKT 1 CKT 1 CKT 1
SINGLE SINGLE SINGLE	186 187 188 189 190	: : : : : : : : : : : : : : : : : : : :	OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM	BUS BUS BUS BUS	65620 65660 65660 65720	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK	230.00] 230.00] 230.00] 230.00]	TO TO TO	BUS BUS BUS BUS	66145 66335 66750 66145	SHERIDAN YELOWTLP OREBASIN	230.00] 230.00] 230.00] 230.00]	CKT 1 CKT 1 CKT 1 CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190	: : : : : : :	OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK	230.00] 230.00] 230.00] 230.00] 230.00]	TO TO TO TO	BUS BUS BUS BUS	66145 66335 66750 66145 66535	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL	230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1 CKT 1 CKT 1 CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190 191	: : : : : : : : :	OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK [HUNTNGTN	230.00] 230.00] 230.00] 230.00] 230.00] 345.00]	TO TO TO TO TO	BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL	230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1 CKT 1 CKT 1 CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190 191 192		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805 65805	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK [HUNTNGTN [HUNTNGTN	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00]	TO TO TO TO TO	BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO 61	230.00] 230.00] 230.00] 230.00] 230.00] 345.00]	CKT 1 CKT 1 CKT 1 CKT 1 CKT 1 CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190 191 192		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805 65805	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK [HUNTNGTN	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00]	TO TO TO TO TO	BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO 61	230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1 CKT 1 CKT 1 CKT 1 CKT 1 CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190 191 192 193	: : : : : : : : : :	OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805 65805 65805	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00]	TO TO TO TO TO	BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66400	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00]	CKT 1 CKT 1 CKT 1 CKT 1 CKT 1 CKT 1 CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190 191 192 193 194 195		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65720 65805 65805 65805 65875	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00]	TO TO TO TO TO TO	BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65720 65805 65805 65875 65945	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MIDVALLY	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00]	TO TO TO TO TO TO	BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955 66080	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00]	CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190 191 192 193 194 195 196		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65720 65805 65805 65875 65945 65945	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 345.00]	TO TO O O O O O O O	BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955 66080 66510	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65720 65805 65805 65875 65945 65945	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 345.00]	TO TO O O O O O O O	BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955 66080 66510	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00]	CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190 191 192 193 194 195 196 197		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65720 65805 65805 65875 65945 65945 65955	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY [MI DWEST	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 230.00]	TO T	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955 66080 66510 67531	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [MIDWEST [VINNETY S [TERMINAL [CLAIMJPR	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00]	CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805 65805 65805 65875 65945 65945 65975	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY [MI DWAST [MI DWEST [MINERS	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 345.00] 230.00]	T0000000000000000000000000000000000000	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65224 66400 66400 66510 67531 66240	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL [CLAIMJPR [PLATTE	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 345.00] 230.00]	CKT 1
SINGLE	186 187 188 190 191 192 193 194 195 196 197 198 199		OPEN OPEN OPEN OPEN OPEN OPEN OPEN OPEN	TINE TINE TINE TINE TINE TINE TINE TINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805 65805 65805 65945 65945 65955 65975 65995	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY [MI DVALLY [MI DWEST [MINERS [MONA	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00]	TO TO O O O O O O O O O O O O	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66490 66590 66510 67531 66240 66340	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL [CLAIMJPR [PLATTE [SIGURD	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 345.00] 345.00]	CKT 1
SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE SINGLE	186 187 188 190 191 192 193 194 195 196 197 198 199		OPEN OPEN OPEN OPE	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805 65805 65875 65945 65945 65995 65995	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY [MI DVALLY [MI DWEST [MINERS [MONA	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00]	TO TO O O O O O O O O O O O O	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66490 66590 66510 67531 66240 66340	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL [CLAIMJPR [PLATTE [SIGURD	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 345.00] 230.00]	CKT 1
SINGLE	186 187 188 190 191 192 193 194 195 196 197 198 199 200		OPEN OPEN OPEN OPE	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805 65805 65875 65945 65945 65995 65995	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY [MI DVALLY [MI DWEST [MINERS [MONA	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00]	TO TO O O O O O O O O O O O O	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66490 66590 66510 67531 66240 66340	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL [CLAIMJPR [PLATTE [SIGURD	230.00] 230.00] 230.00] 230.00] 245.00] 345.00] 345.00] 345.00] 345.00] 345.00] 345.00] 345.00] 345.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202		9PEN 9PEN	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65660 65720 65720 65805 65805 65875 65945 65945 65995 65995 65995	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY [MI DVALLY [MI DWEST [MINERS [MONA	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00]	TO TO O O O O O O O O O O O O	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66490 66590 66510 67531 66240 66340	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL [CLAIMJPR [PLATTE [SIGURD	230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203		OPEN O O O O O O O O O O O O O O O O O O O	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65805 65805 65805 65875 65945 65945 65995 66995 66010 66010	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MONA [MONA [MONA [MONUMENT]	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 230.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66745 66535 65995 66224 66400 65955 66510 67531 66240 66340 66340 66340 66011	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL [CLAIMJPR [PLATTE [SIGURD [SIGURD [MONU PST [MONU PST	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203		OPEN OPEN O	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65805 65805 65805 65875 65975 65995 65995 66010 66010	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MONA [MONA [MONA [MONUMENT [MONUMENT	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 230.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66745 66535 65995 66224 66400 65955 66510 67531 66240 66340 66340 66340 66011 66011 66325	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL (CLAIMJPR [PLATTE [SIGURD SIGURD MONU PST [MONU PST [MONU PST [MONU PST	230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203		OPEN OPEN O	LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65805 65805 65805 65875 65975 65995 65995 66010 66010	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MONA [MONA [MONA [MONUMENT]	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 230.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66745 66535 65995 66224 66400 65955 66510 67531 66240 66340 66340 66340 66011 66011 66325	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL (CLAIMJPR [PLATTE [SIGURD SIGURD MONU PST [MONU PST [MONU PST [MONU PST	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 245.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 200 200 200 200 200 200 200 200 200 20			LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	65620 65660 65720 65805 65805 65805 65945 65945 65995 65995 66010 66010 66011	GARLAND GOOSE CK GOOSE CK GRASS CK GRASS CK HUNTNGTN HUNTNGTN HUNTNGTN HUNTNGTN KAYCEE MI DVALLY MI DVALLY MI DWEST MINERS MONA MONUMENT MONUMENT MONUMENT MONUMENT MONUMENT MONUMENT	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO	BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955 66010 66340 66340 66011 66011 666011 66325 66050	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [NINETY S [TERMINAL [CLAIMJPR [PLATTE [SIGURD SIGURD SIGURD MONU PST MONU PST MONU PST SO TRONA NAUGHTON	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 200 200 200 200 200 200 200 200 2			LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65720 657805 65805 65805 65945 65945 65945 65995 66010 66010 66010 66011 66020	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY [MI DWAST [MINERS [MONA [MONA [MONUMENT [MONUMENT]	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955 66080 66510 66511 66240 66340 66340 66011 66021 666325 66050 66410	[SHERIDAN [YELOWTLP COREASIN CONTINUE OF THE MOPE OF THE MOPE OF THE MODE OF T	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206			LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65720 65720 65805 65805 65875 65945 65945 65995 66995 66010 66010 66011 66020 66050	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MIDVALLY [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MINERS [MONA [MONUMENT [MONUMENT] [MONUMENT [MONUMENT] [MONUMENT] [MONUMENT] [MONUMENT] [MONUMENT] [MONUMENT]	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955 66510 67531 66240 66340 66011 66340 66011 66355 66050 66050 66050	[SHERIDAN YELOWTLP OREBASIN THERMOPL IMPORT OREBASIN THE STAND ORE STAND O	230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206			LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65720 65720 65805 65805 65875 65945 65945 65995 66995 66010 66010 66011 66020 66050	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [KAYCEE [MI DVALLY [MI DVALLY [MI DWAST [MINERS [MONA [MONA [MONUMENT [MONUMENT]	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS BUS BUS BUS BUS BUS BUS BUS BUS BUS	66145 66335 66750 66145 66535 65995 66224 66400 65955 66510 67531 66240 66340 66011 66340 66011 66355 66050 66050 66050	[SHERIDAN [YELOWTLP COREASIN CONTINUE OF THE MOPE OF THE MOPE OF THE MODE OF T	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 200 201 202 203 203 204 205 207 208			LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65805 65805 65805 65875 65945 65945 65995 66995 66010 66010 66010 66010 66020 66050 66080	[GARLAND [GOOSE CK [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MINERS [MONA [MONUMENT] [MONUM	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS	66145 66335 66745 66535 65995 66224 66400 65955 66510 67531 66240 66340 66340 66011 66011 66011 66050 66410 66450 66555 66510	[SHERIDAN [YELOWTLP [OREBASIN [THERMOPL [MONA [PINTO &1 [SPAN FRK [MIDWEST [MINETY S [TERMINAL [CLAIMJPR [PLATTE SIGURD MONU PST MONU PST MONU PST SO TRONA NAUGHTON SPENCE TREASTON TERMINAL	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 200 200 200 200 200 200 200 200 2			LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65805 65805 65805 65975 65975 65995 66010 66010 66011 66020 66080 66080 66080 66080	[GARLAND [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MONA [MONUMENT] [MONUM	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00]	TO T	BUS	66145 66335 66745 66535 65995 66224 66400 65955 66510 67531 66240 66340 66340 66340 66340 66311 66011 66011 66550 66510 66510 66550	[SHERIDAN YELOWILP COREBASIN COREBAS	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 200 200 200 200 200 200 200 200 2			LINE LINE LINE LINE LINE LINE LINE LINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65805 65805 65805 65945 65945 65995 66995 66010 66010 66010 66010 66030 66080 66080 66080 66133 66133	[GARLAND [GOOSE CK [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MONA [MONA [MONA [MONUMENT] [MONUMENT] [OQUIRRH [OQUIRRH	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS	66145 66335 66745 66535 66535 66595 66224 66400 67531 66240 66340 66340 66340 66011 66325 66010 66510 66510 66510 66510	[SHERIDAN YELOWILP COREBASIN THERMOPL COREBASIN THERMOPL CORE COR	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1 CKT 2 CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 200 200 200 200 200 200 200 200 2			LINE LIINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65720 65720 65805 65805 65875 65945 65945 65995 66010 66010 66010 66010 66010 66013 66013 66180	GARLAND GOOSE CK GOOSE CK GOOSE CK GRASS CK GRASS CK HUNTNGTN HUNTNGTN HUNTNGTN HUNTNGTN HUNTNGTN KAYCEE MI DVALLY MI DWALLY MI DWALLY MI DWALLY MI DWEST MONA MONUMENT MONUME	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00]	TO T	BUS	66145 66335 66745 66535 66535 66595 66224 66400 67531 66240 66340 66340 66340 66011 66325 66010 66510 66510 66510 66510	[SHERIDAN YELOWILP COREBASIN THERMOPL COREBASIN THERMOPL CORE COR	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1 CKT 2 CKT 1
SINGLE	186 187 188 199 190 191 192 193 194 195 196 197 198 200 201 202 203 204 205 206 207 207 208 209 211			LINE LIINE	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65720 65720 65805 65805 65875 65945 65945 65995 66010 66010 66010 66010 66010 66013 66013 66180	GARLAND GOOSE CK GOOSE CK GOOSE CK GRASS CK GRASS CK HUNTNGTN HUNTNGTN HUNTNGTN HUNTNGTN HUNTNGTN KAYCEE MI DVALLY MI DWALLY MI DWALLY MI DWALLY MI DWEST MONA MONUMENT MONUME	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS	66145 66335 66750 66145 66535 665955 66224 66400 66510 66340 66340 66011 666325 66050 66510 66550 66510 66510 66510 66510 66526	[SHERIDAN YELOWTLP CREBASIN THERMOPL CREBASIN THERMOPL MONA PINTO &1 SPAN FRK MIDWEST NINETY S TERMINAL CLAIMJPR PLATTE SIGURD SIGURD MONU PST MONU PST SO TRONA NAUGHTON SPENCE TREASTON TERMINAL TERMINAL TERMINAL RAVEN	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00]	CKT 1
SINGLE	186 187 188 199 190 191 192 193 194 195 196 197 198 200 200 200 200 200 200 200 200 200 20			LINE ELLINE ELLI	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65805 65805 65805 65805 65945 65945 65945 65995 66010 66010 66010 66020 66030 66133 66180 66180	[GARLAND [GOOSE CK [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MOVALLY [MIDVALLY [MIDVALY [MIDVALY [MOND [MOND [MOND [MOND [NINETY [MONUMENT [MONUMEN	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 230.00]	TO T	BUS	66145 66335 66755 66995 66535 66995 66224 66400 66510 66510 66340 66011 66340 66050 66510 66550 66510 66510 66510 66510 66510 66510 66510 66510 66510 66510 66510 66510 66510 66510	[SHERIDAN YELOWTLP OREBASIN THERMOPL THERMOPL MONA FINTO &1 SPAN FRK MIDWEST NINETY S TERMINAL CLAIMJPR FLATTE SIGURD MONU PST MONU PST SO TRONA NAUGHTON SPENCE TREASTON TERMINAL TERMINAL TERMINAL RAVEN ROCKSPGS	230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 200 200 200 200 200 200 2			LINE ELLINE ELLI	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65805 65805 65805 65975 65995 66010 66010 66011 66020 66080 66133 66180 66180 666195	[GARLAND [GOOSE CK [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MOVALLY [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MONA [MONA [MONA [MONUMENT]MONUMENT [MONUMENT [MONUMENT [MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT [MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT]MONUMENT]MONUMENT]	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS	66145 66335 66745 66535 66535 66524 66400 665955 66510 66510 66340 66011 66325 66050 66410 66510 66510 66510 66510 66510 66510	[SHERIDAN YELOWILP COREBASIN THERMOPL COREBASIN THERMOPL CORE COR	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 200 200 200 200 200 200 2			LINE ELLINE ELLI	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65805 65805 65805 65975 65995 66010 66010 66011 66020 66080 66133 66180 66180 666195	[GARLAND [GOOSE CK [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MOVALLY [MIDVALLY [MIDVALLY [MIDVALLY [MIDWEST [MONA [MONA [MONA [MONUMENT]MONUMENT [MONUMENT [MONUMENT [MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT [MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT]MONUMENT]MONUMENT [MONUMENT]MONUMENT]MONUMENT]MONUMENT]MONUMENT]	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS	66145 66335 66745 66535 66535 66524 66400 665955 66510 66510 66340 66011 66325 66050 66410 66510 66510 66510 66510 66510 66510	[SHERIDAN YELOWILP COREBASIN THERMOPL COREBASIN THERMOPL CORE COR	230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1
SINGLE	186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 200 200 200 200 200 200 2			LINE ELLINE ELLI	FROM FROM FROM FROM FROM FROM FROM FROM	BUS	65620 65660 65720 65805 65805 65805 65975 65995 66010 66010 66011 66020 66080 66133 66180 66180 666195	[GARLAND [GOOSE CK [GOOSE CK [GOOSE CK [GRASS CK [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [HUNTNGTN [MOVALLY [MIDVALLY [MIDVALY [MIDVALY [MOND [MOND [MOND [MOND [NINETY [MONUMENT [MONUMEN	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 230.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	TO T	BUS	66145 66335 66745 66535 66535 66524 66400 665955 66510 66510 66340 66011 66325 66050 66410 66510 66510 66510 66510 66510 66510	[SHERIDAN YELOWILP COREBASIN THERMOPL COREBASIN THERMOPL CORE COR	230.00] 230.00] 230.00] 230.00] 230.00] 345.00] 345.00] 345.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00] 230.00]	CKT 1

SINGLE	216	:	OPEN	LINE	FROM	BUS	66225	[PINTO	345.00]	TO	BUS	66235	PINTO PS	345.001	CKT	1
SINGLE	217	:	OPEN	LINE	FROM	BUS	66240	[PLATTE	230.00]	TO	BUS	67499	[LATHAM	230.00]	CKT	1
SINGLE	218	:	OPEN	LINE	FROM	BUS	66250	[PT ROCKS	230.00]	TO	BUS	66315	ROCKSPGS	230.001	CKT	1
SINGLE	219	:	OPEN	LINE	FROM	BUS	66250	[PT ROCKS	230.00]	TO	BUS	67529	BITTERCK	230.001	CKT	1
SINGLE	220	:	OPEN	LINE	FROM	BUS	66266	[RAVEN	230.001	TO	BUS	66670	WESTVACO	230.001	CKT	1
SINGLE	221	:	OPEN	LINE	FROM	BUS	66280	[REDBUTTE	345.00]	TO	BUS	66281	RED B SVC	345.00]	CKT	1
SINGLE	222	:	OPEN	LINE	FROM	BUS	66280	[REDBUTTE	345.00]	TO	BUS	67657	UTAH-NEV	345.001	CKT	1
SINGLE	223	:	OPEN	LINE	FROM	BUS	66305	[RIVERTON	230.00]	TO	BUS	66535	THERMOPL	230.00]	CKT	1
SINGLE	224	:	OPEN	LINE	FROM	BUS	66305	[RIVERTON	230,00]	TO	BUS	66740	(WYOPO	230.00]	CKT	1
SINGLE	225	:	OPEN	LINE	FROM	BUS	66315	[ROCKSPGS	230.00]	TO	BUS	67553	[WIND RIV	230.00]	CKT	1
SINGLE	226	:	OPEN	LINE	FROM	BUS	66340	[SIGURD	345.00]	TO	BUS	66345	[SIGURD	230.00]	CKT	1
SINGLE	227	:	OPEN	LINE	FROM	BUS	66340	[SIGURD	345.00]	TO	BUS	66345	SIGURD	230.00]	CKT	2
SINGLE	228	:	OPEN	LINE	FROM	BUS	66345	[SIGURD	230.00]	TO	BUS	66355	SIGURDPS	230.00]	CKT	1
SINGLE	229	:	OPEN	LINE	FROM	BUS	66476	[SYRACUSE	345.00]	TO	BUS	66510	[TERMINAL	345.00]	CKT	1
SINGLE	230	:	OPEN	LINE	FROM	BUS	67499	[LATHAM	230.00]	TO	BUS	67530	[ECHOSPRG	230.00]	CKT	1
SINGLE	231	:	OPEN	LINE	FROM	BUS	67530	[ECHOSPRG	230.00]	TO	BUS	67770	[CRESTON	230.00]	CKT	1
SINGLE	232	:	OPEN	LINE	FROM	BUS	67551	[JONAHGAS	230.00]	TO	BUS	67554	[WINDR PS	230.00]	CKT	1
SINGLE	233	:	OPEN	LINE	FROM	BUS	67551	[JONAHGAS	230.00]	TO	BUS	67564	[JONFLD	230.00]	CKT	1
SINGLE	234	:	OPEN	LINE	FROM	BUS	67552	[PARDISE	230.00]	TO	BUS	67554	[WINDR PS	230,00]	CKT	1
SINGLE	235	:	OPEN	LINE	FROM	BUS	67552	[PARDISE	230.00]	TO	BUS	67555	[CHMNY BT	230.00]	CKT	1
SINGLE	236	:	OPEN	LINE	FROM	BUS	67552	[PARDISE	230.00]	TO	BUS	67564	[JONFLD	230.00]	CKT	1
SINGLE	237	:	OPEN	LINE	FROM	BUS	67553	[WIND RIV	230.00]	TO	BUS	67554	[WINDR PS	230,00]	CKT	1
SINGLE	239	:	OPEN	LINE	FROM	BUS	60020	[AMFLS	138.00]	TO	BUS	65920	[MALAD]	138.00]	CKT	1
SINGLE	240	:	OPEN	LINE	FROM	BUS	60030	[BLACKFT	161.00]	TO	BUS	65670	[GOSHEN	161.00]	CKT	1
	244	:	OPEN	LINE	FROM	BUS	60084	[3MIKNOLL	345.00]	TO	BUS	65290	[CARIBO 2	138.00]	CKT	2
SINGLE	252	:	OPEN	LINE	FROM	BUS	62061	[RMRK PHA	161.00]	TO	BUS	66755	[YELOWTLP	161.00]	CKT	1
SINGLE	253	:	OPEN	LINE	FROM	BUS	62084	[DILLON S	161.00]	TO	BUS	65155	BIGGRASS	161.001	CKT	1

N-2 Contingency List:

LABEL		EVEN	TS												
BL323	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65145	[BENLOMND	138.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	1
BL325	;	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	66510	[TERMINAL	345.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	BENLOMND	230.00]	CKT	1
BL326	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	66476	[SYRACUSE	345.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	1
BL343	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65145	BENLOMND	138.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	2
BL345	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	66510	[TERMINAL	345.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	2
BL346	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	66476	[SYRACUSE	345.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	60060	[BORAH	345.00]	CKT	1
BL366	;	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	60060	[BORAH	345.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	BENLOMND	230.00]	CKT	2
BLTRMBLSYR	:					65135	[BENLOMND	345.00]	TO	BUS	66510	[TERMINAL	345.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	66476	[SYRACUSE	345.00]	CKT	1
BLBORTRSBRY	;	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	60060	[BORAH	345.00]	CKT	1
		OPEN	LINE	FROM	BUS	66565	[TREASTON	230.00]	TO	BUS	60073	[BRADY	230.00]	CKT	1
BL202	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	1
		OPEN	LINE	FROM	BUS	65145	[BENLOMND	138.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	1
BL222	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	2
BL242	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO	BUS	65140	[BENLOMND	230.00]	CKT	2
		OPEN	LINE	FROM	BUS	65140	[BENLOMND	230.00]	TO	BUS	65145	[BENLOMND	138.00]	CKT	2
BL244	:	OPEN	LINE			65140	[BENLOMND	230.00]	TO	BUS	66050	[NAUGHTON	230.00]	CKT	1
		OPEN	LINE			65140	[BENLOMND	230.00]	TO	BUS	65145	BENLOMND	138.00]	CKT	2
BL245	:	OPEN	LINE	FROM	BUS	65140	[BENLOMND	230.00]	TO	BUS	65160	[BIRCH CK	230.00]	CKT	1
						65140	[BENLOMND	230.00]	TO	BUS	65145	[BENLOMND	138.00]	CKT	2
BLNAUBLBIR	ŧ	OPEN				65140	[BENLOMND	230.00]	TO	BUS	66050	[NAUGHTON	230.00]	CKT	1
						65140	[BENLOMND	230.00]	TO	BUS	65160	[BIRCH CK	230.00]	CKT	1
JB330	;					60085	[BRIDGER	345.00]	TO	BUS	65220	[BRIDGER	230.00]	CKT	1
						60085	[BRIDGER	345.00]	TO	BUS	65220	[BRIDGER	230.00]	CKT	3
						60086	[BRIDGER1	22.000]	TO	BUS	600B5	[BRIDGER	345.00]	CKT	1
JB332	:	OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]	TO	BUS	60060	[BORAH	345.00]	CKT	&1
		OPEN		1,000	44	60086	[BRIDGER1	22.000]	TO	BUS	60085	[BRIDGER	345,00]	CKT	1
JB334	:	OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]	TO	BUS	65220	[BRIDGER	230.00]	CKT	2
		OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]	TO	BUS	60060	[BORAH	345.00]	CKT	&1
JB336	:	OPEN		FROM		60085	[BRIDGER	345.00]	TO	BUS	65220	BRIDGER	230.00]	CKT	1
						60085	[BRIDGER	345.00]	TO	BUS	65220	[BRIDGER	230.00]	CKT	3
		OPEN				60087	[BRIDGER2	22.000]			60085	[BRIDGER	345.00]	CKT	1
JB338	:	OPEN	LINE	FROM	BUS	60087	[BRIDGER2	22.000]	TO	BUS	60085	[BRIDGER	345.00]	CKT	1
		OPEN	LINE	FROM		60085	[BRIDGER	345.00]	TO	BUS	60190	[KINPORT	345.00]	CKT	61
JB340	:	OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]	TO	BUS	65220	BRIDGER	230.001	CKT	2

		OPEN	TTNE	ED OF	4 DIII	C0005	(DDIDGED	245 001	mo nuo		Taken a section in		Table Wall Co.
JB342						60085	[BRIDGER [BRIDGER	345.001			[KINPORT [BRIDGER	345.00]	
00012			LINE			60085	[BRIDGER	345.00]			BRIDGER	230.00]	CKT 1 CKT 3
		OPEN				60088	[BRIDGER3	22.0001			BRIDGER	345.00]	CKT 1
JB344		: OPEN	LINE	FROM	1 BUS	60088	[BRIDGER3	22.000]			BRIDGER	345.00]	
		OPEN	LINE	FROM	1 BUS	60085	[BRIDGER	345.00]	TO BUS	60092	[BRIDGE&B	345.00]	
JB346		: OPEN				60085	[BRIDGER	345.00]		65220	BRIDGER	230.00]	CKT 2
			LINE			60085	[BRIDGER	345.00]			[BRIDGE&B	345.00]	CKT 1
JB352		OPEN				60085	[BRIDGER	345.00]			[BRIDGER	230.00]	CKT 1
			LINE			60085	[BRIDGER	345.00]			BRIDGER	230.00]	CKT 3
JB354	1	OPEN OPEN				60089	[BRIDGER4	22.000]			[BRIDGER	345.00]	CKT 1
00004	9		LINE			60089	[BRIDGER [BRIDGER4	345.00]	TO BUS		[BRIDGER [BRIDGER	230.00] 345.001	CKT 2
JBGOSJBKIN		OPEN				60085	[BRIDGER	345.00]			[BRIDGE&B	345.00]	CKT 1 CKT 1
50.00.00.00.00.00.00.00.00.00.00.00.00.0						60085	[BRIDGER	345.00]			[KINPORT	345.00]	CKT &1
			LINE			60088	[BRIDGER3	22.0001	TO BUS		BRIDGER	345.001	CKT 1
		OPEN	LINE	FROM	BUS	60089	[BRIDGER4	22.000]	TO BUS		BRIDGER	345.00]	CKT 1
JBGOSJBBOR		OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]	TO BUS	60092	[BRIDGE&B	345.00]	CKT 1
			LINE			60085	[BRIDGER	345.00]	TO BUS	60060	[BORAH	345.00]	CKT &1
		OPEN	100 100 100			60088	[BRIDGER3	22.000]			[BRIDGER	345.00]	CKT 1
TOWNSTON	-	OPEN				60089	[BRIDGER4	22.000]	TO BUS		BRIDGER	345.00]	CKT 1
JBKINJBBOR	-	OPEN				60085 60085	[BRIDGER	345.00] 345.00]		60190	[KINPORT	345.00]	CKT &1
		OPEN				60088	[BRIDGER [BRIDGER3	22.000]	TO BUS		[BORAH	345.00]	CKT &1
			LINE			60089	[BRIDGER4	22.0001	TO BUS		[BRIDGER [BRIDGER	345.00] 345.00]	CKT 1 CKT 1
JB292						65220	[BRIDGER	230.00]	TO BUS		MUSTANG	230.00]	
500034	- 8		LINE			65220	[BRIDGER	230.00]	TO BUS		PT ROCKS	230.00]	CKT 1
		OPEN	LINE			66315	[ROCKSPGS	230.00]	TO BUS		PT ROCKS	230.00]	CKT 1
JB294	:	OPEN	LINE	FROM	BUS	65220	[BRIDGER	230.00]	TO BUS	66315	[ROCKSPGS	230.00]	CKT 1
			LINE			65220	[BRIDGER	230.00]	TO BUS	66250	[PT ROCKS	230.00]	CKT 1
n assaz senanciar			LINE			66315	[ROCKSPGS	230.00]	TO BUS		[PT ROCKS	230.00]	CKT 1
JB316	:	OPEN				65220	[BRIDGER	230.00]	TO BUS		[ROCKSPGS	230.00]	CKT 1
JB348		OPEN	LINE			60085 65220	[BRIDGER	345.00]	TO BUS		[BRIDGER	230.00]	CKT 2
00340			LINE			60085	[BRIDGER [BRIDGER	230.00]			[MUSTANG	230.00]	CKT 1
						60085	[BRIDGER	345.00]			[BRIDGER [BRIDGER	230.00]	CKT 1 CKT 3
CW322	:	OPEN				65260	[CAMP WIL	345.00]	TO BUS		MONA	345.00]	CKT 3
						65260	[CAMP WIL	345.001	TO BUS		TERMINAL	345.00]	CKT 1
CW323	:	OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.00]			[MONA	345.001	CKT 1
		OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.00]	TO BUS	66133	[OQUIRRH	345.00]	CKT 1
CW325	:					65260	[CAMP WIL	345.00]	TO BUS	66400	[SPAN FRK	345.00]	CKT 1
			LINE			65260	[CAMP WIL	345.00]	TO BUS		[NINETY S	345.00]	CKT 1
CWTRMCWOQR	:					65260	[CAMP WIL	345.00]	TO BUS		[TERMINAL	345.00]	CKT 1
CW90S1&2	٠					65260 65260	[CAMP WIL	345.00]		66133	[OQUIRRH	345.00]	CKT 1
CW303142	•					65260	[CAMP WIL	345.00]	TO BUS		[NINETY S	345.00]	CKT 1
CWMON2,4		OPEN				65260	[CAMP WIL	345.001	TO BUS		[MONA	345.00]	CKT 2 CKT 2
	15					65260	[CAMP WIL	345.001	TO BUS		MONA	345.00]	CKT 4
CWMON1,3	:	OPEN		FROM	BUS	65260	[CAMP WIL	345.001			MONA	345.00]	CKT 1
		OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.00]	TO BUS		[MONA]	345.00]	CKT 3
CENTRAL XFM	S:					66280	[REDBUTTE	345.00]	TO BUS	65315	[CENTRAL	138.00]	CKT 1
B90272737						66280	[REDBUTTE				[CENTRAL	138.00]	CKT 2
DJ204	3						[DAVEJOHN				[DAVEJOHN	115.00]	
D 7020	12						[DAVEJOHN				[STEGALL	230.00]	
DJ238	1						[DAVEJOHN				[CASPERPP [DAVEJON4	230.00]	
DJ268	:						[DAVEJOHN				[LAR.RIVR	22.000]	
	- 17						DAVEJOHN				[DAVEJON3	13.800]	
EM303	:					65510		345.00]				138.00]	
							[EHUNTR 3	22.000]				345.00]	
EM321	:						[EMERY	345.00]	TO BUS	65805	[HUNTNGTN	345.00]	CKT 1
							[EHUNTR 1	24.000]				345.00]	CKT 1
P14000	,61						[EHUNTR 1	24.000]				345.00]	
EM323	٠					65510		345.00]				345.00]	
EM324	ç					65510	[EHUNTR 3	22.000]				345.00]	
PL1354	•					65510		345.00] 345.00]				345.00] 138.00]	
EM341						65510					[HUNTNGTN	345.00]	
	•					65510		345.00]				138.00]	
EM343	:					65510		345.00]				345.00]	
		OPEN	LINE	FROM	BUS	65510	[EMERY	345.00]	TO BUS	65515	EMERY	138.00]	
EMSIG1&2	:					65510	A. S. O. M.	345.00]	TO BUS	66340	(SIGURD	345.00]	CKT 1
110001						65510		345.00]			(SIGURD	345.00]	
HT301	•							345.00]				345.00]	
HT303							[HUNTNGTN [HUNTN G2				[HUNTNGTN [HUNTNGTN	138.00]	
114 9 9 9	*	~ F 171A	JA 19E	- IVOPI	200	55600	LIDITIN GZ	22.000]	TO DOD	00000	THOM THO I'M	345.00]	CVI I

		ODEN	TILLE	EDON	DITE	C=000	CHEDIBAL GO	20 0001	mo	0 55005	/	045 001	outm o
			LINE			65800 65805	[HUNTN G2 [HUNTNGTN	22.000] 345.00]		S 65805	[HUNTNGTN	345.00]	
HT322						65795	[HUNTN G1			S 65810	[HUNTNGTN	138.00]	
HISEE	•		LINE			65795	[HUNTN G1	22.000]		S 65805 S 65805	[HUNTNGTN	345.00]	
						65805	[HUNTNGTN	345.001		S 65510	[HUNTNGTN	345.00]	
HT323						65800	[HUNTN G2	22.000]		S 65805	[EMERY	345.00] 345.00]	
111020			LINE			65800	[HUNTN G2	22.000]		S 65805	[HUNTNGTN	710 CONT 17 ON 10 TO	
						65805	[HUNTNGTN	345.00]		S 65995	[HUNTNGTN [MONA	345.00] 345.00]	
MV324		OPEN				65945	[MIDVALLY	345.00]		S 66080	701776. N. S.		
117.524		OPEN				65945					[NINETY S	345.00]	
MV344	- 2	OPEN				65945	[MIDVALLY	345.00]		S 65946	[MIDVALLY	138.00]	
MV 344			LINE			65945	[MIDVALLY [MIDVALLY	345.00] 345.00]		S 66510	[TERMINAL	345.00]	
MV364		OPEN		1.00		65945				S 66080	[NINETY S	345.00]	
117.204	•	OPEN				65945	[MIDVALLY	345.00]		S 66510	[TERMINAL	345.00]	
MN345		OPEN						345.00]		5 65946	[MI DVALLY	138.00]	
MINSAS	•	OPEN				65995 65995	[MONA	345.00]		S 65805	HUNTNGTN	345.00]	
MN346		OPEN				65995	[MONA [MONA	345.00] 345.00]		5 65260 5 66340	[CAMP WIL	345.00] 345.001	
1111/240			LINE			65995	17 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3				[SIGURD		CKT 1
MN347	110					65995	[MONA	345.00]		5 65260	[CAMP WIL	345.00]	CKT 1
1111/04/							[MONA	345.00]		66340	[SIGURD	345.00]	CKT 2
MN349						65995	[MONA	345.00]		5 65260	[CAMP WIL	345.00]	
1/11/24/2	•					65995	[MONA	345.00]		5 26043	[INTERMT	345.00]	
MNSG1&2						65995	[MONA]	345.00]		65260	[CAMP WIL	345.00]	CKT 4
PINSGIAZ	•					65995	[MONA	345.00]			[SIGURD	345.00]	
Mmo	1/2		LINE			65995	[MONA	345.00]			[SIGURD	345.00]	CKT 2
MT2	•	OPEN				66010	[MONUMENT	230.00]			[EXXON WY	230.00]	
N (m 4	35	OPEN				66010	[MONUMENT	230.00]		65165	[BLACKSFK	230.00]	
MT4						66010	[MONUMENT	230.00]		65545	[EXXON WY	230.00]	CKT 1
						66010	[MONUMENT	230.00]		66011	[MONU PST	230.00]	
t am c						66010	[MONUMENT	230.00]		66011	[MONU PST	230.00]	CKT 2
MT6	•					66010	[MONUMENT	230.00]		66325	[SO TRONA	230.00]	CKT 1
						66010	[MONUMENT	230.00]		66011	[MONU PST	230.00]	CKT 1
5.4m.A			LINE			66010	[MONUMENT	230.00]		66011	[MONU PST	230.00]	CKT 2
MT8	:	OPEN	0.00			66010	[MONUMENT	230.00]		66325	[SO TRONA	230.00]	CKT 1
LIM CE C						66010	[MONUMENT	230.00]		65165	[BLACKSFK	230.00]	CKT 1
MT652	:					66011	[MONU PST	230.00]		65374	[CRAVENCK	230.00]	CKT 1
Lam man		OPEN				66011	[MONU PST	230.00]		66010	[MONUMENT	230.00]	CKT 2
MT656	•					66011	[MONU PST	230.00]		65374	[CRAVENCK	230.00]	CKT 1
1400.550						66011	[MONU PST	230.00]		66050	[NAUGHTON	230.00]	CKT 1
MT660						66011	[MONU PST	230.00]			[NAUGHTON	230.00]	CKT 1
14.344.00000						66010	[MONUMENT	230.00]		66011	[MONU PST	230.00]	CKT 1
MT664	:					66010	[MONUMENT	230.00]		66011	[MONU PST	230.00]	CKT 1
V62/2/1/2						66010	[MONUMENT	230.00]		66011	[MONU PST	230.00]	CKT 2
NT211	:					66050	[NAUGHTON	230.00]		66055	[NAUGT G1	18.000]	CKT 1
		OPEN				66050	[NAUGHTON	230.00]	TO BU		[MONU PST	230.00]	CKT 1
NT212	:					66050	[NAUGHTON	230.00]		66060	[NAUGT G2	20.000]	CKT 1
		OPEN				66050	[NAUGHTON	230.00]		65160	[BIRCH CK	230.00]	CKT 1
NT213	:	OPEN				66050	[NAUGHTON	230.00]		66065	[NAUGT G3	24.000]	CKT 1
90 VLDQVC (10		OPEN				66050	[NAUGHTON	230.00]		65140	[BENLOMND	230.00]	CKT 1
NT214	:		LINE			66050	[NAUGHTON	230.00]	TO BUS		[NAUGHTN1	138.00]	CKT 2
						66050	[NAUGHTON	230.00]		66565	[TREASTON	230.00]	CKT 1
NT215	:	OPEN				66050	[NAUGHTON	230.00]		66045	[NAUGHTN2	138.00]	CKT 1
		OPEN	LINE	FROM	BUS	66050	[NAUGHTON	230.00]	TO BUS	65374	[CRAVENCK	230.00]	CKT 1
905303/304	:						[NINETY S				[CAMP WIL	345.00]	Service Control
							[NINETY S	345.00]	TO BUS	66085	[NINETY S	138.00]	CKT 1
905321	;						[NINETY S	345.00]				138.00]	
							[NINETY S	345.00]	TO BUS	66085	[NINETY S	138.00]	CKT 2
905323	:						[NINETY S	345.00]			[CAMP WIL	345.00]	CKT 2
7232323232							[NINETY S	345.00]				345.00]	CKT 1
908324	:						[NINETY S	345.00]			[CAMP WIL	345.00]	
							[NINETY S	345.00]	TO BUS	66510	[TERMINAL	345.00]	CKT 1
90MV90TM	:	OPEN	LINE	FROM	BUS	66080	[NINETY S	345.00]	TO BUS	65945	[MIDVALLY	345.00]	CKT 1
							[NINETY S	345.00]			[TERMINAL	345.00]	CKT 1
PT302	:	OPEN	LINE	FROM	BUS	66225	[PINTO				[PINTO PS	345.00]	CKT 1
		OPEN	LINE	FROM	BUS	66225	[PINTO	345.00]			[PINTO 3	13.800]	
PL298							[PLATTE	230.00]			[PLATTE	115.00]	
PL304	:	OPEN	LINE	FROM	BUS	66240	[PLATTE	230.00]				230.00]	
RB341							[REDBUTTE	1000 NO. 100 N			[REDBUTTE		CKT 1
							[REDBUTTE				CENTRAL	138.00]	
							[REDBUTTE	2.154.11. 2.819.97			[CENTRAL	138.00)	
RB362	:						[REDBUTTE				THREE PK	345.00]	
							REDBUTTE				[REDBUTTE	138.00]	
RV112	:						[RIVERTON				THERMOPL	230.00]	CKT 1
							[RIVERTON	230.00]				230.00]	
RV138	:						RIVERTON				[RIVERTON	115.00]	
		OPEN	LINE	FROM	BUS	66305	RIVERTON	230.00]				230.00]	
RV172	:	OPEN	LINE	FROM	BUS	66305	RIVERTON				RIVERTON	115.00]	
											CONTRACTOR OF THE PROPERTY OF THE PARTY OF T	and the state of t	

	0.5	DNI T TAI	e enox	/ Dire	66305	(DTMEDMON)	220 001	mo pu		Lovennen	000 001	men e
RS128		EN LIN				[RIVERTON [ROCKSPGS	230.00]			[CASPERPP [PALISADE	230.00]	
14.7.77.04.340.00		EN LIN				[ROCKSPGS	230.001		66250	[PT ROCKS	230.001	
RS132	: OF	EN LIN	E FROM	4 BUS	66315	[ROCKSPGS	230,00]	TO BU	66180	[PALI SADE	230.00]	
		EN LIN				[ROCKSPGS	230.00]		65555	[FIREHOLE	230.00]	
RSPTRSJB		EN LIN				[ROCKSPGS	230.00]			[PT ROCKS	230.00]	
SG302		EN LIN				[ROCKSPGS [SIGURD	230.00] 345.00]		65220	[BRIDGER [MONA	230.00]	
55552		EN LIN			66340	[SIGURD	345.00]			[SIGURD	345.00] 230.00]	
SG303		EN LIN				[SIGURD	345.00]		65510	EMERY	345.001	
	OF	EN LIN	E FROM	1 BUS	66340	[SIGURD	345.00]	TO BUS	66345	SIGURD	230.00]	
SG304		EN LIN				[SIGURD	345.00]			[MONA]	345.00]	
SG324	: OP	EN LIN			66340	[SIGURD	345.00]		66345	[SIGURD	230.00]	
50524		EN LIN				[SIGURD	345.00] 345.00]		65995	[MONA [EMERY	345.00] 345.00]	
SF327		EN LIN				SPAN FRK	345.00]			[CAMP WIL	345.001	
	OP	EN LIN	E FROM	1 BUS	66400	[SPAN FRK	345.00]		66405	SPAN FRK	138.00]	
SF345CLSD		EN LIN				[SPAN FRK	345.00]		66405	[SPAN FRK	138.00]	
SF347CLSD		EN LIN				[SPAN FRK	345.00]		66405	SPAN FRK	138.00]	
SF347CLSD		EN LINI EN LINI				[SPAN FRK [SPAN FRK	345.00] 345.00]			[CAMP WIL [HUNTNGTN	345.00] 345.00]	
SF357		EN LIN				SPAN FRK	345.00]		65805	[HUNTNGTN	345.00]	
		EN LIN				[SPAN FRK	345.00]			SPAN FRK	138.00]	
TM304	: OP				66510	[TERMINAL	345.00]		66080	[NINETY S	345.00]	CKT 1
mv200					66510	[TERMINAL	345.00]		66520	[TERMINAL	138.00]	
TM308	: OP	EN LIN			66510	[TERMINAL [TERMINAL	345.00] 345.00]		66520	[OQUIRRH [TERMINAL	345.00]	
TM309		EN LINE				[TERMINAL	345.00]		65260	[CAMP WIL	138.00] 345.00]	
		EN LINE				[TERMINAL	345.00]		66520	TERMINAL	138.00]	CKT 2
TM323		EN LINE				[TERMINAL	345.00]	TO BUS	65945	[MIDVALLY	345.00]	CKT 1
m) (0.0.4		EN LINE				[TERMINAL	345.00]		66520	[TERMINAL	138.00]	CKT 2
TM324		EN LINE			66510	[TERMINAL	345.00]		66080	[NINETY S	345.00]	CKT 1
TM328		EN LINE				[TERMINAL [TERMINAL	345.00] 345.00]		66520	[TERMINAL [OQUIRRH	138.00] 345.00]	CKT 1 CKT 1
		EN LINE				[TERMINAL	345.00]		65135	[BENLOMND	345.00]	
TM329		EN LINE				[TERMINAL	345.00]		65260	[CAMP WIL	345.00]	
		EN LINE				[TERMINAL	345.00]		66476	[SYRACUSE	345.00]	CKT 1
TM348		EN LINE				[TERMINAL	345.00]		65135	[BENLOMND	345.00]	CKT 1
TM349		EN LINE EN LINE				[TERMINAL	345.00] 345.00]		66520 66476	[TERMINAL [SYRACUSE	138.00]	CKT 1
111045		EN LINE			66510	[TERMINAL	345.00]		66520	[TERMINAL	345.00] 138.00]	
TMBLTMSY		EN LINE			66510	[TERMINAL	345.00]		65135	[BENLOMND	345.00]	
	OP	EN LINE	FROM	BUS	66510	[TERMINAL	345.00]	TO BUS	66476	SYRACUSE	345,00]	
TM90TMMV		EN LINE			66510	[TERMINAL	345.00]		66080	[NINETY S	345.00]	CKT 1
TMCWTMOO		EN LINE			66510	[TERMINAL	345.00]		65945	[MIDVALLY	345.00]	CKT 1
THOMIPOQ		EN LINE				[TERMINAL	345.00]		65260 66133	[CAMP WIL [OQUIRRH	345.00] 345.00]	CKT 1 CKT 1
TH14		EN LINE				[THERMOPL	230.00]		66305	[RIVERTON	230.001	CKT 1
	OPI					[THERMOPL	230.00]	TO BUS	66540	[THERPACE	115.00]	CKT 1
TH16,220	: OPI					[THERMOPL	230.00]		65720	[GRASS CK	230.00]	CKT 1
TH224		IN LINE				[THERMOPL	230.00]		66540	[THERPACE	115.00]	CKT 1
10224		N LINE				[THERMOPL		TO BUS		[RIVERTON [BADWATER	230.00]	
TH228						[THERMOPL	230.00]			THERPACE	115.00]	
	OPE	N LINE	FROM	BUS	66535	[THERMOPL				[BADWATER	230.00]	
TRZ20						[TREASTON	230.00]				230.00]	
mp o 4 o						[TREASTON				[TREASTON	138.00]	
TR240		N LINE				[TREASTON [TREASTON				[NAUGHTON [TREASTON	230.00] 138.00]	
TR230CLSD						[TREASTON	230.00]				230.00]	
		N LINE				[TREASTON	230.00]			NAUGHTON	230.00]	
TR232CLSD						[TREASTON	230.00]			[TREASTON	138.00]	
mnnn mass		N LINE				[TREASTON				[TREASTON	138.00]	
TRBRJBKP		N LINE				[TREASTON	230.00]				230.00]	
TRBRJBBO		N LINE				[BRIDGER [TREASTON	230.00]			[KINPORT	345.00] 230.00]	
and the state of t		N LINE				[BRIDGER	345.00]				345.00]	
WY326	: OPE	N LINE	FROM	BUS	66725	[WYODAK	230.00]	TO BUS	65293	[CARR DRA	230.00]	
1200000000						[WYODAK	230.00]	TO BUS	73294	[HUGHES	230.00]	CKT 1
WY334						[WYODAK	230.00]				230.00]	
YW278						[WYODAK [YELOWTLP				[WYODAK 1 [YELLOWBR	22.000]	
m. 4.5 (M. 1) (M.)						[YELOWILP				[YELOWTLP	161.00]	
YW284	: OPE	N LINE	FROM	BUS	66750	[YELOWTLP				GOOSE CK	230.00]	
1000										BLGS PHA	230.00]	CKT 1
YW286	: OPE	N LINE	FROM	BUS	66750	[YELOWTLP	230.00]	TO BUS	65575	FRANNIE	230.00]	CKT 1

	OPEN LI	NE FROM BUS 66	750 [YELOWTLP	230.001	TO BUS	62045	[BLGS PHA	230.001	CKT	1
YW290	: OPEN LI	NE FROM BUS 66	750 [YELOWTLP	230.00]	TO BUS	65575	[FRANNIE	230.00]	CKT	1
	OPEN LI	NE FROM BUS 66	750 [YELOWTLP	230.00]	TO BUS	66755	[YELOWTLP	161.00]	CKT	1
YW296	: OPEN LI	NE FROM BUS 66	750 [YELOWTLP	230.00]	TO BUS	65660	[GOOSE CK	230.00]	CKT	1
	OPEN LIN	NE FROM BUS 667	50 [YELOWTLP	230.00]	TO BUS	73229	[YELLOWBR	230.001	CKT	1

Appendix 4: Transient Stability Results-2015 Heavy Summer

Path 8 Path 80 ATR 1 Action ATR 2 Action ATR 3 Action ATR 4 Action (cycles) (cycles)	-		0 0	0		0 0	0	0 0	0 0		0	0	0	
na ATR 3 Act	11.1	0	0	-	2 2	0		0	13.8	=		0	0	
ATR 2 Action (cycles)	0	0	0	0	0	0		0	0	0	0	0	0	5 0
ATR I Action (cycles)	10.4	0	0	10	12	0	0	0	0	10	0	000	0	
Path 80	14.0	14.0	14.0	14.9	14.0	14.0	14.0	14.9	14.9	14.9	14.0	14.9	14.9	
Path 8	884	888	883	885	885	885	888	885	885	885	885	885	888	200
Total Colstrip Gen	2260	2260	2260	2260			3260	2260	2260	106			2260	23.00
Low Voltage Bus	SLVRBOW 115 kV	PTRSNFLT 230 kV	PTRSNFLT 230 kV	COLSTRP 230 kV	MILCTYDC 230 kV	LAVINAPM 100 kV	PTRSNFLT 230 kV	PTRSNFLT 230 kV	PTRSNFLT 230 kV	BGTMBERA 161 kV	MARTNSDA 100 kV	DUCKCR-R 161 kV	MILCTYDC 230 kV	DEDCAME T 120 LA
Low Voltage Bus # Low Voltage Bus	62154	62030	62030	62060	63010					62250			63010	620020
Low Voltage (p.u.)	0.7276	0.8538	0.8323	0.8538	0.8735	0.9183	0.8858	0.7827	0.8671	0.7790	0.9128	0.8660	0.8936	0.900.1
WECC Result	Ü	В	В	В	В	В	В	В	В	В	В	В	В	п
Switchdeck File	sdk grtt12m mc gr.txt	sdk lgrttlm.txt	sdk 3grtf1.txt	sdk 3bycs1.txt	sdk Ibvesl.txt	sdk 3ttbb.txt	sdk 3ttdw.txt	sdk tump.txt	sdk mptn.txt	sdk tngr12.txt	sdk tngr1 txt	dk 3bvtn12.txt	dk 3bvtn1.txt	edle muel tyt
Line Segment Opened						Taft Bell	Taft Dworshak			3-Phase Fault at Townsend 500 kV Townsend - Garrison (both circuits)	3-Phase Fault at Townsend 500 kV Townsend Gamison (single circuit)	3-Phase Fault at Broadview 500 kV Broadview - Townsend (both circuits) sdk 3bvtn12.txt	3-Phase Fault at Broadview 500 kV Broadview - Townsend (single circuit) sdk 3bvtn1.txt	Midpoint - Summer Lake
Fault Description	3-Phase Fault at Garrison 500 kV Garrison Taft (both circuits)	1-Phase Fault at Garrison 500 kV Garrison - Taft (single circuit)	3-Phase Fault at Garrison 500 kV Garrison - Taft (single circuit)	3-Phase Fault at Broadview 500 kV Broadview - Colstrip	1-Phase Fault at Broadview 500 kV Broadview - Colstrip	3-Phase Fault at Taft 500 kV	3-Phase Fault at Taft 500 kV	3-Phase Fault at Townsend 500 kV Townsend - Midpoint (MSTI)	3-Phase Fault at Midpoint 500 kV Townsend Midpoint (MSTI)	3-Phase Fault at Townsend 500 kV	3-Phase Fault at Townsend 500 kV	3-Phase Fault at Broadview 500 kV	3-Phase Fault at Broadview 500 kV	3-Phase Fault at Midnoint 500 kV Midnoint - Summer Lake





Appendix 4: Transient Stability Results-2010 Light Autumn

Fault Description	Line Segment Opened	Switchdeck File	WECC! Result	WECC Low Voltage Low Voltage Result (p.u.) Bus#	Low Voltage Bus#	Low Voltage Bus	Total Colstrin Gen	Path Pa	Path Path ATR 1 Action ATR 2 Action ATR 3 Action ATR 4 Action 8 80 (revelee) (revelee)	m ATR 2 Action	ATR 3 Action	ATR 4 Action
3-Phase Fault at Garrison 500 kV Garrison Tafl (both circuits)	Garrison - Tafl (both circuits)	sdk grtt12m mc gr.txt	B	8298 0	18029	COLSTRP 115 LV	2224	10		(capita)	100	(carain)
1-Phase Fault at Garrison 500 kV	Garrison - Taft (single circuit)	selk Jorti Im tet	100	0.0138	15109	SI VIDDOW 115 LV	22.74	2170 550 5		0	10.2	7.01
3-Phase Fault at Garrison 500 kV Garrison - Taft (single circuit)	Garrison - Tafl (single circuit)	sdk 3ertil tyt	0	\$FU6.0	15009	CITTRANK 115 LV	2224	2170 550 5	0 50	0	0	15.8
3-Phase Fault at Broadview 500 kV Broadview - Colstrin	Broadview Colstrin	off there! ret	a	0 6655	(3001	COLCTBB 1151.17	1207	2110 33		>	0	0
1-Plase Fault at Broadview 500 kV Broadview Colstrin	Broadview - Coletrin	odly throat test	0	0,0000	10000	COLSING III NA	1	0.600 0/17	01 0%	0	0	=
	dingra marian	SUL IOUGELIAL	Q	0.5000	02010	MILCLYDC 230 KV	2324	2170 559.5	0 0	0	0	13.8
	Taft Bell	sdk_ttbb.txt	В	0.9366	62031	CUTBANK 115 kV	2324	2170 559 5	0 50	0	0	U
3-Phase Fault at Taft 500 kV	Taft Dworshak	sdk_ttdw.txt	В	0.9421	62351	HRSHOEGN 34.5 kV		2170 559 5	0 20	0	0	0 0
3-Phase Fault at Townsend 500 kV Townsend Midpoint (MSTI)	Townsend Midpoint (MSTI)	sdk frimp.fxt	В	0.9402	63010	MILCTYDC 230 kV		2170 559 5	0 22	0	0	0 0
3-Phase Fault at Midpoint 500 kV Townsend Midpoint (MSTI)	Townsend Midpoint (MSTI)	sdk mpfn.txt	В	0.9545	73216	WINDRIVR 115 kV		7170 559 5	0 20	0	0	000
3-Phase Fault at Townsend 500 kV	3-Phase Fault at Townsend 500 kV Townsend Garrison (both circuits)	sdk_tngr12.txt	В	0.8165	62081	COLSTRP 115 kV		2170 559 5	95 92	0	10.2	10.3
3-Phase Fault at Townsend 500 kV	3-Phase Fault at Townsend 500 kV [Townsend Garrison (single circuit)	sdk_tngr1.txt	В	0.9344	62235	MARTNSDA 100 kV	102-	2170 559.5		0	0	0
3-Phase Fault at Broadview 500 kV	3-Phase Fault at Broadview 500 kV Broadview Townsend (both circuits)	sdk_3bvtn12.txt	В	0.8274	8666	DCEAST 230 kV	2324	2170 559 5	90	0	0	0
3-Phase Fault at Broadview 500 kV	3-Phase Fault at Broadview 500 kV Broadview Townsend (single circuit)	sdk_3bvtn1.txt	В	1616.0	62235	MARTNSDA 100 KV		2170 559.5	15 0	0	0	0
3-Phase Fault at Midpoint 500 kV Midpoint Summer Lake	Midpoint - Summer Lake	sdk_mpsl.txt	В	0.9751	60225	MICRON 138 kV	2324	2170 559.5	9.5 0	0	0	



Thomas W. Green
Chair, Technical Studies Subcommittee
Public Service Company of Colorado

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June 4, 2008

PLANNING COORDINATION COMMITTEE TECHNICAL STUDIES SUBCOMMITTEE

Subject: Mountain States Transmission Intertie (MSTI) Achieves Phase 2 Status

On July 26, 2007, NorthWestern Energy (NWE) notified the Western Electricity Coordinating Council (WECC) that it was initiating the WECC Regional Planning Review Process for the NWE sponsored MSTI project. MSTI consists of a new 500 kV transmission line from Townsend, MT to Midpoint, ID. The proposed in-service date is 2013.

On April 23, 2008 NWE completed the WECC Regional Planning Process for MSTI by the Planning Coordination Committee (PCC) acceptance of the RPPR. One set of comments on the Comprehensive Progress Report (CPR) was received from PPL Montana. NWE has committed to address the issues raised in these comments during the Phase 2 study process. PPL Montana has agreed with this proposal. System modeling data for the project was provided to WECC on June 4, 2008.

In accordance with the WECC Overview of Policies and Procedures for the Regional Planning Project Review, Project Rating Review and Progress Reports, this letter is to confirm that the Mountain States Transmission Intertie has achieved Phase 2 status.

Sincerely,

Thomas W. Green

cc: Kent Bolton, WECC Brian Silverstein, Chair, Planning Coordination Committee

NORTHERN TIER TRANSMISSION GROUP

Annual Planning Report - 2007

DRAFT

March 26, 2008



Preface

This report was prepared by Comprehensive Power Solutions, LLP, as part of its facilitation and coordination work for the Northern Tier Transmission Group. The members and other stakeholders participating in the effort to provide coordinated, efficient and effective planning for expansion of transmission within the Northern Tier footprint have been helpful in developing the content of this report.

While the report is made available to the public, neither Northern Tier or CPS accepts any duty of care to third parties who may wish to make use of or rely upon information presented in this report. CPS has exercised due and customary care in developing this report, but has not independently verified information provided by others and makes no further express or implied warranty regarding the report's preparation or content. Consequently, CPS and Northern Tier shall assume no liability for any loss due to errors, omissions or misrepresentations made by others.

This report may not be modified to change its content, character or conclusions without the express written permission of CPS and Northern Tier.

To ensure efficient, effective, coordinated use and expansion of the members' transmission systems in the Western Interconnection to best meet the needs of customers & stakeholders.

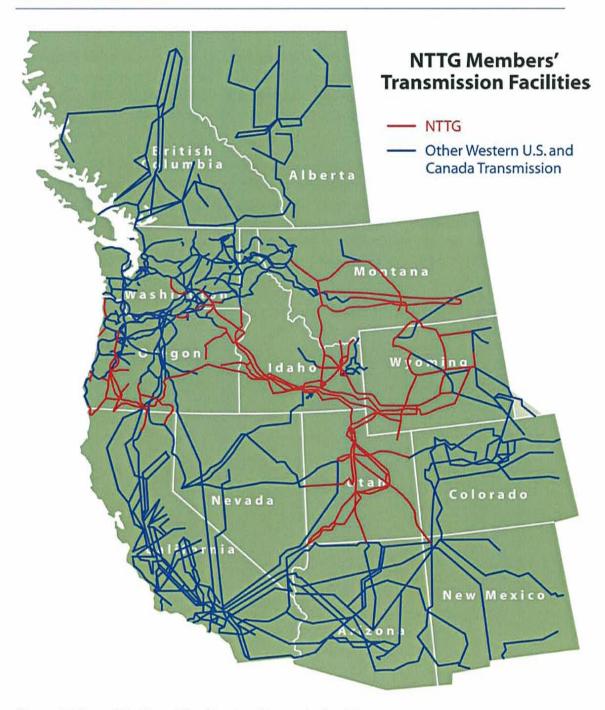


Figure 1: Map of Northern Tier Member Transmission Lines

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Summary

The Northern Tier Transmission Group was formed in the autumn of 2006 to establish a subregional planning process that would meet the needs of its members by coordinating the operation and expansion of transmission to serve customers and wholesale power markets. Northern Tier is also intended to meet the mandate set forth in the Federal Energy Regulatory Commission's Order No. 890, to provide greater transparency to regional transmission planning.

Northern Tier is a combined effort of transmission providers, state regulatory agencies, and other stakeholders.

This document is a first annual report on the organization, structure, activities, accomplishments and future plans for coordination and planning of transmission within the geographic footprint defined by the members' systems.

This report focuses on the development and execution of a Fast Track Project Process to expedite needed transmission additions without waiting for design and development of a more permanent Biennial Planning Process.

A primary intent in forming the Northern Tier Transmission Group was to implement needed transmission projects and initiatives quickly, without being held back by the time-consuming and delaying processes that plagued development of RTO West and GridWest. The objective was to develop required organizational structures as needed, but in parallel with production of work products.

The Fast Track Project Process was used in 2007 to identify projects needed for reliability and to meet Transmission Service Requests. The Fast Track Process, open to stakeholder input and participation, was pursued at the same time that a more formalized Northern Tier Transmission Group Sub-Regional Planning process was designed to dovetail with the Western Energy Coordinating Council's Regional Planning Process.

Development of these synchronous planning processes, designed to meet requirements of the Federal Energy Regulatory Commission's Order 890, are now complete but would have delayed needed transmission planning. 2007 saw the development of individual transmission providers' Order 890, Attachment K filings, which defined their individual processes, and the development of Northern Tier's Biennial Planning Process.

The Fast Track Projects are comprised primarily of 500 kV lines designed to connect the energy resource-rich regions of the Inland Northwest with the customer loads of the Pacific Northwest and Southwest.

Background

Between 2001 and 2006, a series of transmission planning processes took place in the Western Interconnection. Among these were the SSG-WI (Seams Steering Group – Western Interconnection) framework, and the RMATS (Rocky Mountain Area Transmission Study), which led to creation of the Rocky Mountain Sub-regional Planning Group. The Western Governors Association, in addition to the RMATS initiative, promoted the CDEAC (Clean and Diversified Energy Advisory Committee) and the WGA Study (Conceptual Plans for Electricity Transmission in the West).

Table 1: Existing and Prior Regional Transmission Studies

WG	A: Conceptual Plans for Electricity Transmission in the West
SSG	S-WI: Seams Steering Group – Western Interconnection
NTA	G: Canada to California
Colo	rado Long-Range Transmission Planning Study
Neva	ada State Office of Energy – T4 Win Project
RMA	ATS: Rocky Mountain Area Transmission Study
Mon	tana-Northwest Transmission Equal Angle Report
Wes	t of Hatwai System Upgrade Projects
Cana	ada-to-Northwest Intertie Expansion
WEO	CC Coordinated Phase Shifter Operation
Wes	tern Interconnection 2006 Path Utilization Study (Dept. of Energy)
CDE	AC: Clean and Diversified Energy Advisory Committee Initiative

A Northern Tier Transmission initiative was announced on October 11, 2006, and its initial meeting was held November 8, 2006. Northern Tier was initiated by members of the Grid West regional transmission organization that remained following a number of departures in 2006, in order to carry on several beneficial initiatives that were underway, including coordinated subregional planning, common assured transfer capability methods and coordination, and a diversity interchange for area control errors. Its participants were involved in the RMATS project, which identified several needed expansion projects that now form the core of the Northern Tier Fast Track Project, as well as the ACE Diversity Interchange initiative.

The Northern Tier initiative led to formal creation of the Northern Tier Transmission Group as a sub-regional planning group and a part of the Western Energy Coordinating Council's Transmission Expansion Planning Policy Committee efforts.

The Transmission Expansion Planning Policy Committee was, like the Northern Tier Transmission Group, formed in response to the direction the federal government was taking in the FERC's Order 890 promulgating regional and sub-regional transmission planning. The objectives of Order 890 were to promote coordination, openness, transparency, information exchange, interconnection-wide participation, and dispute resolution.

In early 2007, the Northern Tier transmission providers undertook two parallel planning initiatives: Task I, to identify Fast Track projects, and a concurrent Task 2, to develop a biennial planning process in conjunction with the regional planning process being established by the Transmission Expansion Planning Policy Committee and the planning processes being set up by the other sub-regional groups within the Western Interconnection.

In 2007, Northern Tier completed the Task 1 Fast Track Project Identification and, for Task 2, completed the Biennial Planning Process Charter and Planning Agreement, and established the organizational structure to carry out the task. Execution of the Biennial Planning Process began in January of 2008 and is expected to produce the first Northern Tier Transmission Group Biennial Planning Report in the fall of 2009. This report describes the Task 1 Fast Track Project Process and its results.

The Northern Tier Transmission Group

NTTG focuses its efforts on the evaluation of transmission projects that move power across the sub-regional bulk transmission system that services load in its footprint. The transmission providers belonging to Northern Tier serve nearly 2.7 million retail customers with over 27,500 miles of high voltage transmission lines. These members provide service across much of Utah, Wyoming, Montana, Idaho and Oregon, and parts of Washington and California.

NTTG is committed to coordinating sub-regional planning efforts with adjacent sub-regional groups and other planning entities. It is expected that the Western Electricity Coordinating Council will continue to be responsible for coordinating and promoting electric system reliability across the Western Interconnection through its role in regional reliability planning and facility

rating, and by providing economic planning services to its members through its Transmission Expansion Planning Policy Committee.

NTTG performs both reliability and economic planning coordination, and has started by identifying projects that have been previously studied and spurred interest from members within the NTTG service area.

NTTG works with the WECC Planning Coordination Committee for reliability planning, the WECC TEPPC for economic planning, and is working to implement a framework for cooperation with neighboring sub-regional planning entities.

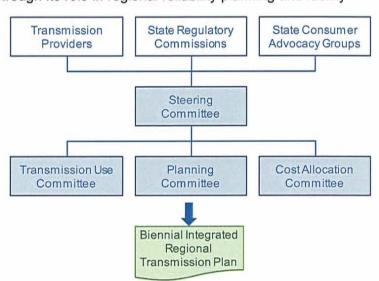


Figure 2: Structure of the Northern Tier Transmission Group

Stakeholder participation is important to the processes of the Northern Tier Transmission Group and all interested parties are encouraged to attend and contribute to the many stakeholder meetings conducted by the transmission use, planning and cost allocation committees, and in preparing, developing and analyzing planning studies. A chronology of 2007 activities is provided in Table 2, below.

NTTG - Chronology of 2007 Activities

Table 2: Chronology of NTTG Activities in 2007

Jan	9	Transmission Use Committee meeting						
	30	Area Control Error Diversity Interchange presentation						
	31	Public stakeholder meeting						
Feb	16	FERC issues Order 890. Among other things, it requires a 'straw man' proposal outlining a process for complying with the planning principals adopted in the Final Rule.						
Mar	13	Transmission Use Committee meeting						
	14	Public stakeholder meeting to initiate development of the Straw Proposal.						
	15	Order 890 Final Rule posted in the Federal Registry.						
	23	Initial conference call to begin coordinating sub-regional planning with other groups in the Western Interconnection, discuss order 890 compliance.						
Apr	4	Northern Tier co-chair discussed the group's efforts to comply with Order 890 with the Committee on Regional Electric Power Cooperation (CREPC).						
	6	Public meeting with the Northwest Transmission Advisory Committee and Columbia Grid to discuss Order 890 compliance requirements and approaches to integration and cooperation.						
	10	Northern Tier participated with the Western Electricity Coordinating Council in a public meeting to discuss planning roles and relationships among regional, sub-regional and transmission provider planning groups.						
	14	Planning & Stakeholder meeting						
	16-May 7	Open comment period for the Northern Tier Straw Proposal						
May	23-24	Northern Tier public stakeholder meeting for final walkthrough and review of the Northern Tier Straw Proposal.						
	29	Northern Tier Straw Proposal posted on the Northern Tier Web site and on the transmission providing members' OASIS sites.						
Jun	13	Northern Tier presentation at FERC Technical Conference, Park City, Utah						
Jul	9	Public stakeholder meeting – Planning						
	10	Transmission Use Committee meeting						
Aug	20	Public stakeholder meeting – Planning						
Oct	22	Public stakeholder meeting – Planning						
Nov	7	Public stakeholder meeting						
	13	Public stakeholder meeting – Planning						
	16	Cost Allocation meeting						
Dec	17	Joint Cost Allocation & Planning meeting						

Transmission Queue – NTTG Companies

The Northern Tier Transmission Group's member transmission providers elicit requests for transmission service from generation builders, electricity users and others in the first quarter of each year in accordance with their Open Access Transmission Tariffs. Figure 3, below, shows the amounts of capacity requested in the 2007 solicitation, along hypothetical paths between different regions within the Northern Tier footprint.

Most of these requests are for service beyond current and forecasted Assured Transfer Capability, given the existing transmission system and planned loads and resources.

To meet these needs in a timely fashion, a "Fast-Track" planning process was established and a set of transmission additions were identified.

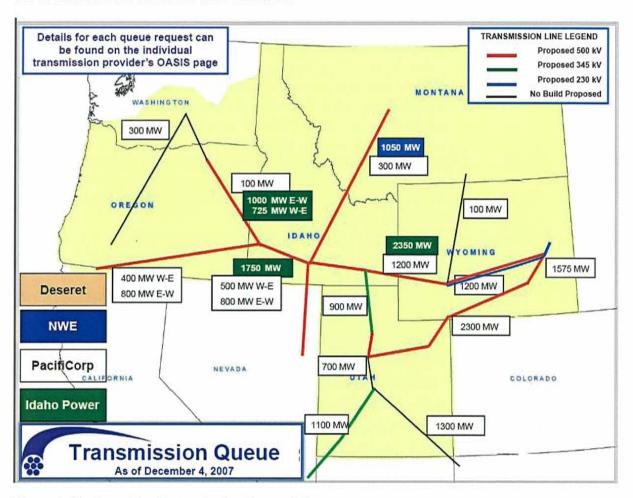


Figure 3: Northern Tier Transmission Request Queue

The Northern Tier Fast-Track Planning Process

Here are the steps followed in the fast-track planning process:

- Review, with stakeholders, past transmission provider studies and additional data to identify congested transmission that impedes efficient and reliable operation of the grid
- Collect and review information available from the Western Electricity Coordinating Council and others regarding future projects that affect the Northern Tier footprint
- 3) Review the RMATS and SSG-WI congestion studies, and historical Available Transmission Capacity and utilization data from the Northern Tier Transmission Use Committee
- Acquire, review and align loads and resources and Integrated Resource Plan data for member transmission providers, augmenting and revising to accommodate shareholder input
 - a) Update and finalize 5-, 10- and 15-year load projections
- Tabulate Available Transmission Capacity and Transmission Service Requests from member transmission providers
- Aggregate load and resource needs, locating them geographically and compare to existing transmission path capabilities to determine if additional transmission construction is needed
- 7) Review expansion requirements with stakeholders
- 8) Identify hub and spoke candidates
- 9) Review RMATS and other studies' recommended capacity expansions
- Northern Tier transmission providers select transmission expansion candidates, identifying Fast Track Projects by June 30, 2007
- 11) Each project sponsor develops a technical study plan that:
 - a) Identifies interested parties
 - b) Identifies affected parties
 - c) Invites participation in study efforts
 - d) Coordinates with other regional and sub-regional planning groups
 - e) Establish meeting times and locations, coordinated via Northern Tier with other sub-regional planning groups and the Western Electricity Coordinating Council
 - Defines a technical studies process to be integrated with the WECC Regional Planning Review and Three-Phase Rating Process
- 12) Each project sponsor performs required WECC Regional Planning Review Process studies, Phase I, Phase II rating studies, and submit to Northern Tier Planning Committee to review and present to stakeholders
- 13) Northern Tier facilitates project implementation and coordination with the Western Electricity Coordinating Council and other sub-regional planning groups.
- Cost Allocation Committee processes Fast-Track Projects in the 2008 Biennial Planning Process as a pilot project

The NTTG Fast-Track Projects

Figure 6, below, is a map of the Western Interconnection showing the set of transmission improvements designed by the Northern Tier transmission providers to accommodate projected needs for future capacity. The lines comprise the 'Fast-Track Projects' which provide for pressing development needs and constitute the first iteration of the Northern Tier planning process.

The primary benefit of the Fast-Track expansion plan is the timely connection of substantial and diverse resource development in the sparsely populated Mountain States with population centers along the West Coast and in the Desert Southwest. In addition, the interties will allow significant diversity transactions among the distinctly different climate, weather and resource regimes of the Western Interconnection.

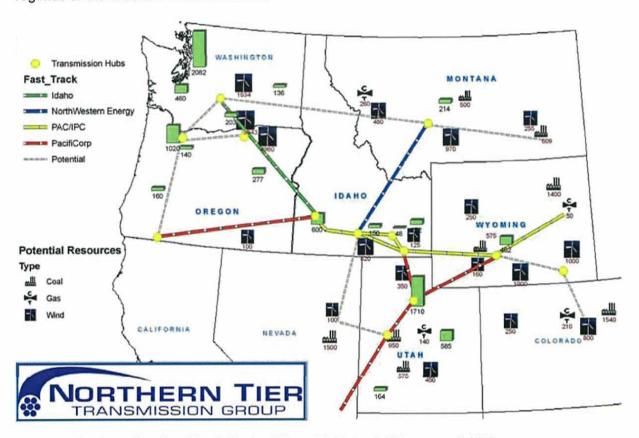


Figure 4: Northern Tier Fast-Track Project Map with Potential Resource Additions

The table and map on the next page show the principal projects in the Fast-Track Program, their points of termination, voltages, potential routes, current status and anticipated completion dates.

Table 3: Fast-Track Project Data

Project Name	Voltage (kV)	States	Length (Miles)	WECC Rating Phase	Permit Status	In-Service Year
Gateway South	500/345	WY, UT, NV	450±			2013
Gateway West	500/230	WY, ID,OR	650			2014
Hemingway-Boardman	500	ID, OR	230			
Hemingway-Captain Jack	500	ID, OR	320			2014
Mountain States Transmission Intertie	500	MT, ID	460			2013
SouthWest Intertie Project - North	500	ID, NV	230			2011
Walla Walla to McNary	230	WA, OR	56			2010

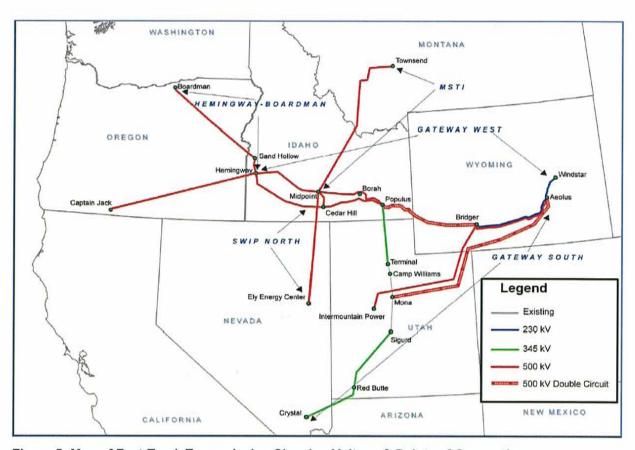


Figure 5: Map of Fast-Track Transmission Showing Voltage & Points of Connection

NTTG Fast-Track Development Timelines

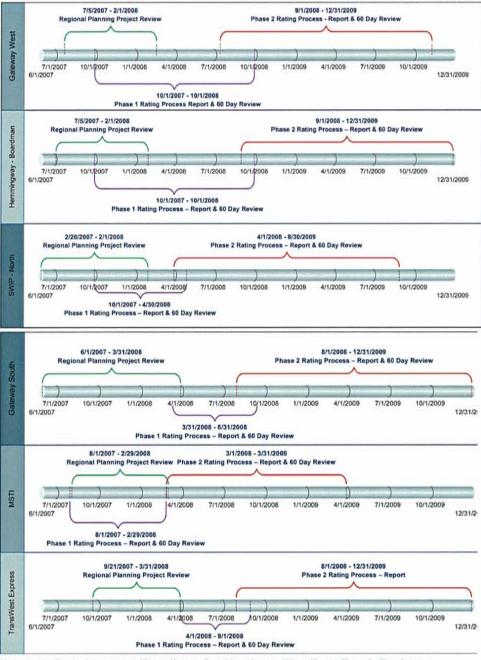


Figure 6: Development Timelines for Northern Tier Fast-Track Projects

The Sub-Regional Planning Process

In addition to and in parallel with their Fast-Track Project activities, the Northern Tier Transmission Group and its member transmission providers developed, in 2007, individual Attachment K planning processes and a two-phase sub-regional Northern Tier Biennial Planning Process. Initiated in January, 2008, the steps of the Biennial Planning Process include:

Phase 1: Northern Tier Transmission Group Planning Process

- 1. Annual Planning Process identify needs, least cost expansion project alternatives, technical benefits, and project costs.
- Planning Committee identify expansion beneficial projects with sponsorrecommended cost and benefit allocations.
- 3. Cost Allocation Committee reviews identified projects, applies principles and recommends likely cost allocation.
- 4. Planning Committee develops and circulates a Draft Annual Expansion Plan.
- 5. NTTG Steering Committee approves the draft expansion plan.
- 6. Final Annual Expansion Plan includes likely cost and benefit allocation estimates for the given planning assumptions.
- Planning Estimates for expansion projects, congestion and re-dispatch, and additional assured transfer capability, costs and cost allocations are prepared by the Economic Study Process with input from the Transmission Use Committee.
- Customer Decision Process customers, other stakeholders and interested
 parties are informed of and asked to comment on the plan and its estimated
 impacts, costs and benefits.
- 9. Formal Open Access Transmission Tariff Service Request Process customers make network transmission and point-to-point transmission requests via the transmission providers' Open Access Transmission Tariffs and planning for firm needs and reliability is undertaken by members.

Phase 2: Transmission Provider Project Implementation Process

- Transmission providers and project sponsors will finance projects, facilitate permitting, and implement their formal Open Access Transmission Tariff processes.
- Service Request Aggregation Process Northern Tier Transmission Group may facilitate open seasons or coordinate requests made of individual transmission providers as appropriate and requested.
- Steering Committee may initiate coordinated queues and consolidated transmission service request processes in the future.

- 4. Transmission Providers' Formal Open Access Transmission Tariff Process
- 5. Transmission Providers undertake transmission construction, including detailed planning, permitting and building.
- Transmission Providers each undertakes its own regulatory approval and rate process.

Relationships among Planning Entities in the West

Transmission planning in the Western Interconnection has evolved to incorporate three distinct levels activity: Transmission providers, sub-regional transmission groups, and regional planning entities. The relationships among regional, sub-regional and individual transmission providers are shown in the following diagram:

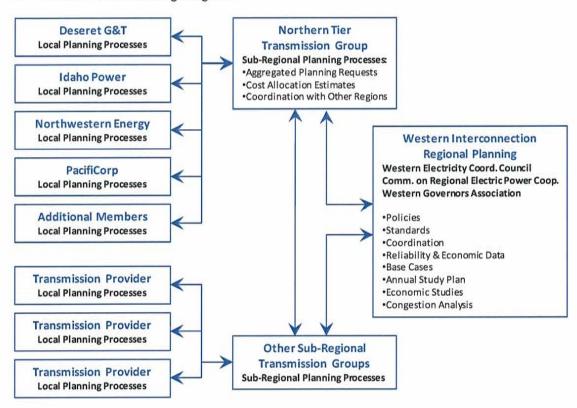


Figure 7: Three-level Planning Process in the Western Interconnection

Individual transmission providers were once (for the most part) fully-integrated generation, transmission and distribution utilities that, with deregulation, have now changed focus to provide equal access to all markets and customers.

The transmission providers each develop and maintain an Open Access Transmission Tariff that receives and acts on requests for transmission service in accordance with a well-defined procedure. The transmission providers also assess future load and resource developments to

plan the evolution of an efficient transmission system, and undertake reliability analysis and improvements.

Where service requests and other identified needs call for the development of transmission that involves participation of multiple transmission providers within a sub-regional transmission group's footprint, the planning and analysis of improvements are coordinated at the sub-regional level. Projects that span greater distances are planned, analyzed and developed in coordination with other sub-regional groups or at the regional WECC level.

Regional and Sub-Regional Planning Timelines

The Northern Tier Transmission Group's planning timelines are designed to coordinate with those of the Western Electricity Coordinating Council, with a two-year cycle for transmission expansion and reliability and a one-year economic study cycle that examines preliminary plans for the first year of the biennial cycle, and draft plans for the second year of the preceding cycle.

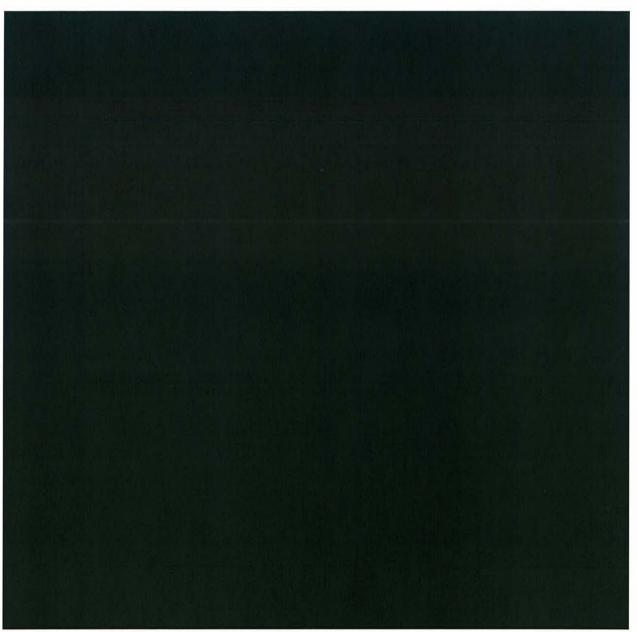


Figure 8: Timelines for Regional & Sub-Regional Planning

Details of the Fast Track Transmission Projects

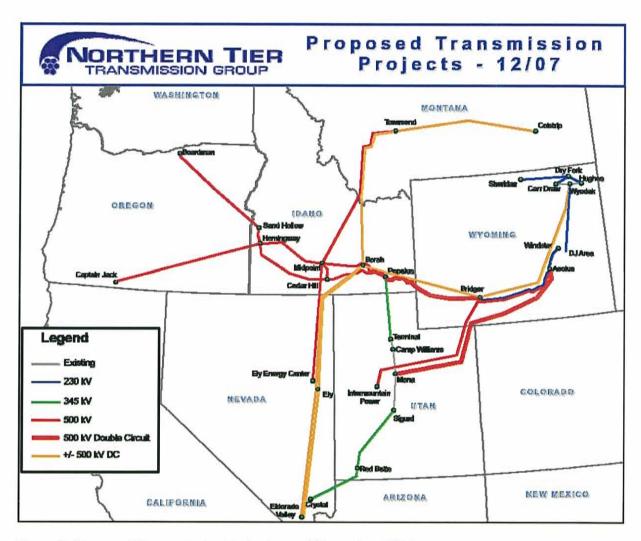


Figure 9: Proposed Transmission Projects as of December 2007

The following pages provide maps and descriptions of the components of the Fast Track Transmission Projects, which are included among the facilities shown in the above map of overall Northern Tier Transmission Group's proposed projects.

Hemingway to Boardman Transmission Project

The project consists of a single-circuit 500-kV transmission line with a proposed bi-directional rating of 1000 MW stretching about 230 miles from Hemingway substation (formerly Melba) southeast of Boise, Idaho, to a new substation being planned near Boardman, in north-central Oregon.

This project, sponsored by Idaho Power, is designed to provide for anticipated service-area load growth and to meet transmission service requests. By 2017, Idaho Power forecasts an additional 800 MW of Idaho native load. Further, Idaho Power is obligated, pursuant to its Open Access Transmission Tariff, to plan and expand its transmission system based on needs of its network customers and eligible customers that agree to expand the Idaho Power transmission

system.

Constraints on the existing Idaho to Northwest transmission path (Path 14) prevent Idaho Power from meeting transmission requests currently in its queue. Path 14 is currently rated at 1,200 MW with a summer operating transfer capability of 1090 MW west-to-east, and is fully subscribed.

The Hemingway-to-Boardman Transmission Project was initiated in response to a transmission request submitted by Idaho Power's merchant group and was identified in Idaho Power's 2006 Integrated

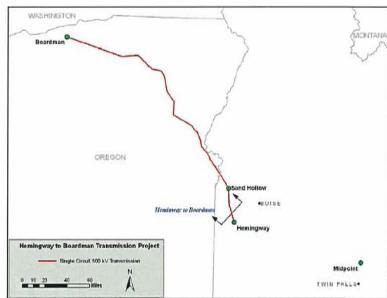


Figure 10: Map of Hemingway-to-Boardman Transmission Project

Resource Plan to access Pacific Northwest energy resources to serve Idaho Power's growing customer needs.

The Rocky Mountain Area Transmission Study (RMATS) of 2004 evaluated many expansion scenarios, with the Phase 1 Report including a Midpoint-to-Oregon transmission path as a recommended transmission path to support the development of Wyoming resources beyond the RMATS study footprint, providing an estimated annual savings of \$516 million.

A Regional Planning Review Group was established and held its first meeting on September 7, 2007, with additional stakeholder meetings on October 17 and November 13. Meeting notices, presentations and minutes were posted on Idaho Power's OASIS Web site (http://www.oatioasis.com/ipco/index.html).

Hemingway to Captain Jack Transmission Project

Northern Tier Transmission Group member PacifiCorp is sponsoring the development of a 500-kV transmission line from the Hemingway substation at Melba, Idaho (southeast of Boise), to the Bonneville Power Administration's Captain Jack substation near Bonanza in Northern California. The single-circuit line will span approximately 320 miles and is planned to be in service in 2014.

The existing Midpoint-to-Summer Lake 500 kV line between South Central Idaho and Southern Oregon will add a terminus at the Hemingway substation. The lines will provide a robust pathway for energy between the Pacific Coast and the Inland West.

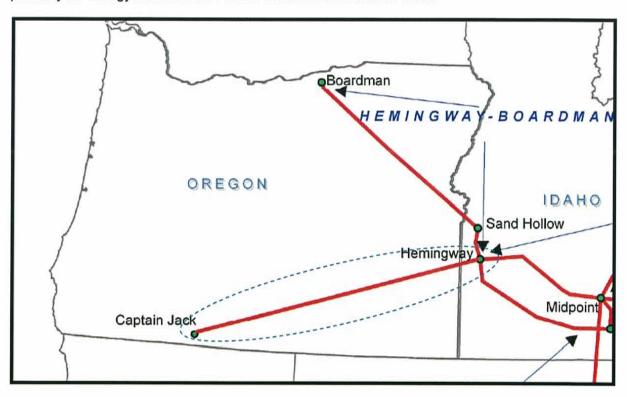


Figure 11: Map of Hemingway to Captain Jack Transmission Project

Southwest Intertie Project (SWIP) North

The Southwest Intertie Project is being developed by LS Power, LLC, under the name Great Basin Transmission, LLC, in cooperation with Idaho Power, which holds the permits. Great Basin purchased an exclusive option to build the SWIP from Idaho Power, which has studied the project for a number of years.

The project is being approached in two segments, with the SWIP North segment being part of the Northern Tier Transmission Group's Fast-Track Project. SWIP North is a 500kV single-circuit line that will be built between the Midpoint substation in South Central Idaho and the White Pine Generating Station near Ely, Nevada.

The initial proposed rating for the Midpoint-White Pine line is 2,000 MW in each direction, subject to results of the WECC Phase 1 Comprehensive Progress Report. The line is proposed to be in service in 2011.

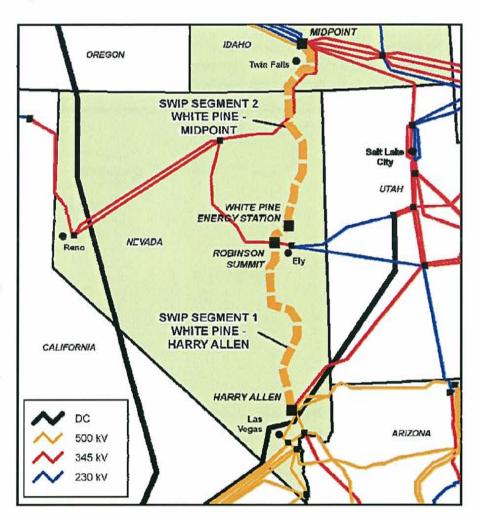


Figure 12: Map of Southwest Intertie Project (SWIP)

Mountain States Transmission Intertie Project

The Mountain States Transmission Intertie (MSTI, pronounced 'misty') is sponsored by Northwestern Energy and will provide a 500-kV link of approximately 460 miles between a new Townsend substation in Southwestern Montana and the Midpoint substation in South Central Idaho. An intermediate connection will be made at the existing Mill Creek substation.

The MSTI will be built to meet transmission service requests and to relieve constraints on the region's existing transmission system. The project will also improve transmission system reliability, meet growing electricity demand in the region, provide regional energy diversification and make a positive economic impact on the area. The project is planned to be in service in

2013, and has a proposed north-south rating of 1,500 MW and a prospective south-north rating of 950 MW.

The Townsend substation will tie into two existing 500-kV east-west interties approximately mid-way between the existing Broadview and Garrison substations. The new line will have series compensation and a phase-shifting transformer to control power flow. Series capacitors will be located at the Midpoint substation, while a substation for the phase-shifting transformer and additional series capacitors will be built near the Mill Creek substation.

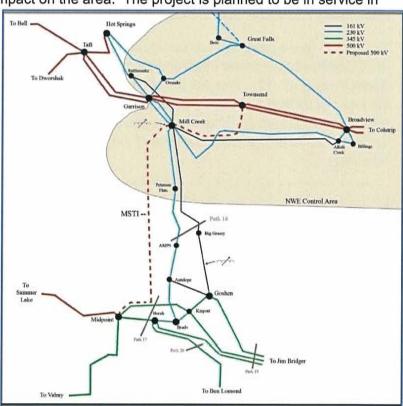


Figure 13: Map of the Mountain States Transmission Intertie

The WECC Phase 1

Comprehensive Progress Report was issued on January 10, 2008 and Phase 2 was initiated in March of 2008.

Gateway West Transmission Project

The Gateway West Transmission Project is sponsored by Idaho Power and PacifiCorp, and is planned to provide for growth in load within the service territory of the two companies. The project will also meet their obligation to plan for and expand their transmission systems based on the needs not only of native load customers but network customers and eligible customers that agree to expand the transmission system.

The project was announced in May of 2007. It is a part of PacifiCorp's broader Energy Gateway initiative, which also encompasses the Gateway South Transmission Project. The project is comprised of a number of new substations and a new, primarily 500-kV pair of lines from a new Windstar substation near the Dave Johnston power plant in Eastern Wyoming to the Hemingway substation near the western border of Idaho.

The project has a proposed combined rating of 3,000 MW, and will parallel three existing WECC-defined bulk power transmission paths: TOT 4A (Path 37), Bridger West (Path 19), and Borah West (Path 17). Besides the terminating Windstar and Hemingway substations, new stations will be built at Aeolus (to integrate new generation resources and to provide connection with the Gateway South Project), Populus (to connect with Path C transmission into Utah), and at Cedar Hill (to tie the more southern of the two lines into the Midpoint substation for increased reliability).

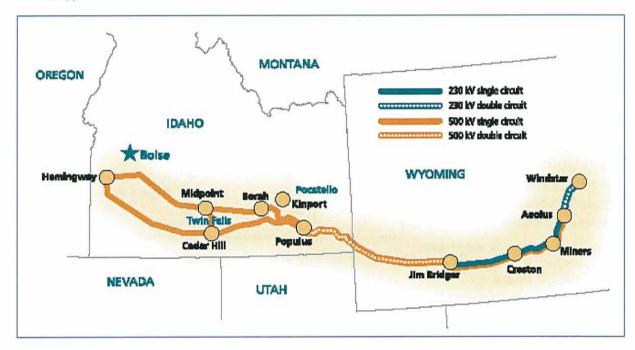


Figure 14: Map of the Gateway West Transmission Project

Gateway South and TransWest Express

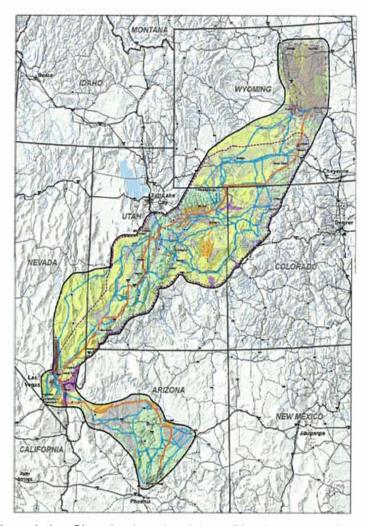
The Gateway South Transmission Project is part of PacifiCorp's Energy Gateway initiative and proposes new high-voltage transmission between Wyoming and Southern Nevada. Arizona Public Service, the Wyoming Infrastructure Authority and National Grid are proposing a similar line from Wyoming through Southern Nevada and prospectively on to the Phoenix, Arizona area.

Recognizing a number of common interests and similar planning and development requirements, the participants in the two projects an interim agreement in August of 2007 to pursue initial development while more complex technical and regulatory issues were considered.

The joint effort undertook a common project team implementation strategy and resource deployment, led by National Grid, coordinating Regional Planning and Rating Review processes, coordinating environmental permitting, and engaging in a common stakeholder and public outreach.

Each project would undertake its own right-of-way filings, WECC rating process and regulatory filings.

The Gateway South project calls for a 500-kV line from the proposed new Aeolus substation in Southeast Wyoming to the Mona substation in Central Utah, to be completed by



2013. A 345-kV line will be built from the existing Sigurd substation (about 50 miles south of Mona), through the Red Butte substation in the southeast corner of Utah, to the Crystal substation north of Las Vegas, Nevada, with completion scheduled for 2012.

Walla Walla to McNary Transmission Project

PacifiCorp is sponsoring a 60-mile long, single-circuit 230-kV transmission line from Walla Walla Washington to the Bonneville Power Administration's McNary substation or to a new Boardman substation west of Hermiston, Oregon. An intermediate connection will be made at the Wallula substation approximately midway along the line. The line is planned to be in service in 2010.

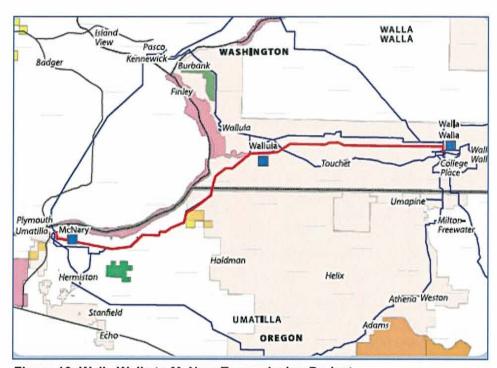


Figure 16: Walla Walla to McNary Transmission Project

Internet Links and Other References

Regional Planning

Western Electricity Coordinating Council

(http://www.wecc.biz)

- Transmission Expansion Planning Policy Committee
 Western Interconnection economic transmission expansion planning support
- Planning Coordination Committee
 Evaluate transmission design and expansion, recommend criteria for reliable operation
- Committee on Regional Electric Power Cooperation

(http://www.westgov.org/wieb/site/crepcpage/)
A committee of the Western Governors' Association's Western Interstate Energy Board

Sub-Regional Planning

- Northern Tier Transmission Group (http://www.nttg.biz)
- ColumbiaGrid (http://www.columbiagrid.org)
- WestConnect (and Sub-Groups)

(http://www.westconnect.com/planning.php)

- Colorado Coordinated Planning Group
- National Renewable Energy Laboratory
- Sierra Pacific Planning Group
- Southwest Area Transmission

Northern Tier Transmission Group Members

- Deserte Generation & Transmission
 (http://www.oasis.pacificorp.com/oasis/dgt/main.html)
- Idaho Power Company (http://www.oatioasis.com/ipco/index.html)
- Northwestern Energy (http://www.oatioasis.com/NWMT/index.html)
- PacifiCorp
 (http://www.oasis.pacificorp.com/oasis/ppw/main.htmlx)
- Utah Association of Municipal Power Systems

Integrated Resource Plans

Idaho Power Company

(http://www.idahopower.com/energycenter/irp/2006/) Idaho Power is currently developing its 2008 Integrated Resource Plan, and preliminary information will be made available on its Web site as it is evolved.

NorthWestern Energy

(http://www.northwesternenergy.com/display.aspx?Page=Default_Supply_Electric&Item=16) NorthWestern does not produce an 'Integrated Resource Plan', per se, but they maintain and make available an "Electric Default Supply Resource Procurement Plan."

PacifiCorp

(http://www.pacificorp.com/Navigation/Navigation23807.html) PacifiCorp's currently posted plan was completed in May of 2007, and development of the 2008 IRP is currently underway.



PHASE 2 STUDY PLAN FOR MOUNTAIN STATES TRANSMISSION INTERTIE (MSTI)

NORTHWESTERN ENERGY ELECTRIC TRANSMISSION PLANNING

JUNE 5, 2008

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I. INTRODUCTION

NorthWestern Energy ("NWE") plans to build a 500 kV transmission line approximately 460 miles long. The line, called the Mountain States Transmission Intertie ("MSTI"), will be built between Townsend, MT, and Midpoint substation in southern Idaho. MSTI will be a series compensated transmission line, with a phase shifting transformer ("PST") to control power flow.

The northern terminus of MSTI will be a new 500 kV substation called Townsend. It will tap two existing 500 kV transmission lines between the Broadview substation, and the Garrison substation. The southern terminus of MSTI will be Midpoint—an existing 500 kV substation in southern Idaho. A substation for the PST will be built at or near the existing Mill Creek substation, in southwest Montana. Series capacitors will be located at Midpoint substation, and Mill Creek substation. Figure 1 provides an approximate route that MSTI may follow. Currently NWE is identifying alternative routes that will be filed with state and federal siting agencies.

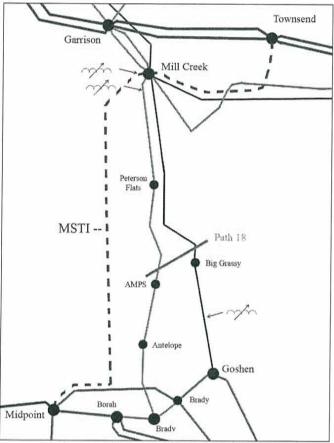


Figure 1. Example MSTI 500 kV Route

Pursuant to the WECC Procedures for Project Rating Review, a Project Review Group will be formed to provide input into the path rating process during Phase 2.

II. SCOPE OVERVIEW

A. Baseline Analysis - Non-simultaneous

All aspects of this analysis, including assumptions, methodology, and contingencies are covered in Section III of this Study Scope.

B. Simultaneous Analyses

NorthWestern Energy has determined that the Study Scope, to the extent possible, will assess potential impact of MSTI on the following simultaneous paths in accordance with the WECC rating procedures and as agreed to within other regional forums.

- 1. Path 8 (Montana to Northwest),
- 2. Path 17 (Borah West),
- 3. Path 18 (Montana-Idaho),
- 4. Path 19 (Bridger West),
- 5. Path 20 (Path C), and
- 6. Montana Alberta Tie Line (MATL)

Details of this analysis are covered in Section IV of this Study Scope.

C. Sensitivity Analyses

TBD

III. BASELINE ANALYSIS – NON-SIMULTANEOUS RATING

Responses to all comments on the MSTI Comprehensive Progress Report received within the 60-day review period ending May 27, 2008, will be addressed in Phase 2 of the WECC Project Rating Review Process

III.A STUDY CONDITIONS

The MSTI project has a planned rating of 1500 MW north to south, and a rating of 950 MW south to north. This rating will be achieved by constructing a new 500 kV line between Townsend, MT and Midpoint, ID with a phase-shifting transformer to control flows. To ensure all NERC/WECC Planning Standards are met while achieving this rating of 1500 MW (N-S) and 950 MW (S-N), power system studies will be performed using WECC base cases and all applicable reliability criteria. Two base cases, a 2010 light autumn, and a 2015 heavy summer will be used to perform this study.

1. Base Case Description

This study uses four base cases in various configurations:

- WECC 2015 Heavy Summer, with all NTTG projects
- WECC 2015 Heavy Summer, with only MSTI
- WECC 2010 Light Autumn, with all NTTG projects
- WECC 2010 Light Autumn, with only MSTI
- These four base cases provide a broad range of scenarios for this study. Both
 heavy load and light load scenarios will be studied with and without other NTTG
 projects; these different scenarios will be used to demonstrate that NWE's plan
 of service meets applicable planning standards and guidelines. These base cases
 will also be used to determine the impact that MSTI has on the existing system

2. Generation Assumptions

Planned future generation projects will be modeled in the base cases based on requests in NorthWestern Energy's Generation Interconnection Queue and Transmission Service Queue.

3. New Transmission Line Project Assumptions

TBD

III.B STUDY METHODOLOGY

The study methodology will encompass the following.

 The power flow base cases(s) and dynamic stability data including the new WECC approved governor model will be developed in PTI PSS/E version 30.2.

- For all areas outside Montana, the network topology and loads will reflect information provided to WECC by each respective area.
- The study will comply with all applicable steady state and transient stability planning standards, including FERC, NERC, WECC, and NWE's internal criteria.

1. Power Flow Analysis

Power flow studies will be performed under normal, single-contingency, and credible multiple-contingency conditions to ensure the Project meets the planning standards.

Study Criteria:

- a. Under normal conditions, bus voltages must be maintained between 0.95 p.u. and 1.05 p.u., unless other specific minimum operating voltage requirements exist. All line and transformer loadings must be below normal continuous ratings.
- b. Study Criteria during Contingency Conditions
 - No transmission element will be loaded above its appropriate rating as stated in the base cases.
 - Equipment emergency voltage limits (high or low) will not be exceeded. (As a
 proxy for these criteria, bus voltages will be flagged if they drop below 0.90 p.u.
 or exceed 1.1 p.u.)
 - Bus voltage deviations from the base case voltage shall not exceed established planning limits.
- c. Single element contingencies (N-1) of 230 kV and above will be examined for the Montana, Idaho, and Wyoming systems.
- d. Credible two element contingencies (N-2) will also be examined. The N-2 contingency list was defined by the Phase 1 Review Group and can be seen in Appendix 1—Any additional requested contingencies from the Review Group will also be studied

2. Transient Stability Analysis

Transient stability studies will be performed to assess the impact on the dynamic performance of the heavily stressed paths under the projected 2010 and 2015 system conditions under various contingencies. A pre-project benchmark base case will be established to represent the system stability limits. The study will determine the most critical fault condition that would limit MSTI non-simultaneous transfer capability.

Study Criteria:

a. All machines in the system shall remain in synchronism as demonstrated by their relative rotor angles except when they are being tripped as a part of a RAS.

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- b. Transient voltage dips and their duration must meet the criteria of the WECC Planning Standards (See Appendix 2).
- c. System small oscillation stability is evaluated based on the damping of the relative rotor angles and the damping of the voltage magnitude swings.
- d. The following contingencies will be examined in the transient stability analysis:

Fault Description	Line Segment Opened
3-Phase Fault at Garrison 500 kV	Garrison Taft (both circuits)
1-Phase Fault at Garrison 500 kV	Garrison Taft (single circuit)
3-Phase Fault at Garrison 500 kV	Garrison Taft (single circuit)
3-Phase Fault at Broadview 500 kV	Broadview – Colstrip
1-Phase Fault at Broadview 500 kV	Broadview – Colstrip
3-Phase Fault at Taft 500 kV	Taft – Bell
3-Phase Fault at Taft 500 kV	Taft – Dworshak
3-Phase Fault at Townsend 500 kV	Townsend Midpoint (MSTI)
3-Phase Fault at Midpoint 500 kV	Townsend Midpoint (MSTI)
3-Phase Fault at Townsend 500 kV	Townsend Garrison (both circuits)
3-Phase Fault at Townsend 500 kV	Townsend Garrison (single circuit)
	Broadview Townsend (both circuits)
	Broadview Townsend (single circuit)
3-Phase Fault at Midpoint 500 kV	Midpoint Summer Lake
3-Phase Fault at Colstrip 500 kV	Colstrip – Broadview
1-Phase Fault at Colstrip 500 kV	Colstrip – Broadview
IPC/PAC System?	???

e. The Colstrip ATR RAS will be modeled throughout the transient study effort.

3. Post-Transient P-V Studies

WECC requires that a path must be tested at a flow level 2.5% above the proposed rating for all level C contingencies, and at a flow level 5% over the proposed rating for Level B contingencies to test for voltage stability. For this analysis, N-S flow on MSTI will be increased by 5% of its rating using a 2015 heavy summer case.

IV. SIMULTANEOUS ANALYSES

NorthWestern Energy expects to study the following simultaneous path interactions—plus whatever others the review group requests:

- Path 8 (Montana to Northwest),
- Path 17 (Borah West),
- Path 18 (Montana-Idaho),
- Path 19 (Bridger West),
- Path 20 (Path C), and
- MATL

IV.1 Path 8 - Montana to Northwest

Power flow cases will be developed to assess the interaction of flows on MSTI with the transfer capability of Path 8. Thermal, post-transient and transient stability studies will be performed to study the relationship between flows on MSTI and a heavily stressed Path 8 system under a 2010 and 2015 timeframe. The following principles will be applied in conducting the simultaneous MSTI/Path 8 studies:

 The Path 8 simultaneous cases will be derived from the 2010 light autumn non-simultaneous case. One case will be developed with maximum westbound flow on Path 8 and a North to South flow of 1500 MW on MSTI

The following methodology will be used in conducting the simultaneous Path 8 studies:

- Path 8 flow will be increased in the pre-project cases to establish that the Path 8 existing rating can be met in those cases. This benchmark case must meet all applicable reliability criteria.
- 2. In the post-project cases, flows on MSTI will be increased to the proposed project rating, which is 1500 MW north to south. Additional voltage support and/or other transmission-facilities will be added until the post-project corner point meets all applicable reliability criteria. Generation displacement will be done in such a way as to maximize the stress on Path 8. The same method will be used to establish the South to North rating of 950 MW. For northbound, flows on MSTI will add to the flows on Path 8, this will be a "series" like situation. The Path 8 limit will likely be the constraint.
- 3. The MSTI phase shifter will be used to force the power flow as needed.

IV.2 Path 17 - Borah West

Description?

The following methodology will be used in conducting the simultaneous Path 17 studies:

- 1. Path 17 flow will be increased in the pre-project cases to establish the Path 17 corner point based on the most limiting condition. This benchmark case must meet all applicable reliability criteria.
- 2. In the post-project cases, flows on MSTI will be increased by the proposed project rating, which is 1500 MW north to south. Additional voltage support and/or other transmission-facilities will be added until the post-project corner point meets all applicable reliability criteria. Generation displacement will be done in such a way as to maximize the stress on Path 17. The same method will be used to establish the South to North rating of 950 MW.
- 3. The MSTI phase shifter will be used to force the power flow as needed.

IV.3 Path 18 - Montana—Idaho

Description?

The following methodology will be used in conducting the simultaneous Path 18 studies:

- Path 18 flow will be increased in the pre-project cases to establish the Path 18 corner point based on the most limiting condition. This benchmark case must meet all applicable reliability criteria.
- 2. In the post-project cases, flows on MSTI will be increased by the proposed project rating, which is 1500 MW north to south. Additional voltage support and/or other transmission-facilities will be added until the post-project corner point meets all applicable reliability criteria. Generation displacement will be done in such a way as to maximize the stress on Path 8. The same method will be used to establish the South to North rating of 950 MW.
- 3. The MSTI phase shifter will be used to force the power flow as needed.

IV.4 Path 19 - Bridger West

Description?

The following methodology will be used in conducting the simultaneous Path 19 studies:

 Path 19 flow will be increased in the pre-project cases to establish the Path 19 corner point based on the most limiting condition. This benchmark case must meet all applicable reliability criteria.

- 2. In the post-project cases, flows on MSTI will be increased by the proposed project rating, which is 1500 MW north to south. Additional voltage support and/or other transmission-facilities will be added until the post-project corner point meets all applicable reliability criteria. Generation displacement will be done in such a way as to maximize the stress on Path 19. The same method will be used to establish the South to North rating of 950 MW.
- 3. The MSTI phase shifter will be used to force the power flow as needed.

IV.5 Path 20 - Path C

Description?

The following methodology will be used in conducting the simultaneous Path 20 studies:

- Path 20 flow will be increased in the pre-project cases to establish the Path 20 corner point based on the most limiting condition. This benchmark case must meet all applicable reliability criteria.
- 2. In the post-project cases, flows on MSTI will be increased by the proposed project rating, which is 1500 MW north to south. Additional voltage support and/or other transmission-facilities will be added until the post-project corner point meets all applicable reliability criteria. Generation displacement will be done in such a way as to maximize the stress on Path 20. The same method will be used to establish the South to North rating of 950 MW.
- 3. The MSTI phase shifter will be used to force the power flow as needed.

IV.6 MATL

Description?

The following methodology will be used in conducting the simultaneous MATL studies:

- MATL flow will be increased in the pre-project cases to establish the MATL corner point based on the most limiting condition. This benchmark case must meet all applicable reliability criteria.
- 2. In the post-project cases, flows on MSTI will be increased by the proposed project rating, which is 1500 MW north to south. Additional voltage support and/or other transmission-facilities will be added until the post-project corner point meets all applicable reliability criteria. Generation displacement will be done in such a way as to maximize the stress on MATL. The same method will be used to establish the South to North rating of 950 MW.
- 3. The MSTI and MATL phase shifters will be used to force the power flow as needed.

IV.7 <u>Mitigation Options</u>

To the extent a need to mitigate criteria violations is indicated from the simultaneous path analyses, a list of some (not all) viable mitigation options will be identified in the studies. Some potential mitigation options including the following:

A. Added Facilities

Additional transmission-related facilities that are required to achieve the simultaneous ratings while meeting the criteria will be identified.

B. Added Remedial Action Schemes (RAS)

Additional or modified remedial action schemes (RAS) that are required to achieve the simultaneous ratings while meeting the criteria will be identified.

C. Operating Procedures

Operating procedures including nomograms that identify specific boundary conditions or operating ranges that need to be maintained to achieve reliable operation will be identified. For example, a rudimentary nomogram should be developed that identifies at least two points (preferably corner points if possible) indicating acceptable boundary conditions.

The above list of potential mitigation options may be expanded after consultation with the Project Review Group if additional options are determined to be viable.

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V. SENSITIVITY ANALYSES

TBD

VI. OTHER STUDIES

TBD

VII. SCHEDULE

TBD

DRAFT APPENDIX 1

N-2 Contingency List:

LABEL		EVEN	me										
BL323		OPEN		FRON	RIIS	65135	[BENLOMND	345.001	TO DIE	65145	BENLOMND	138.001	CKT 1
121010	- 5	OPEN			BUS		[BENLOMND	345.00]	TO BUS		[BENLOMND	230.00)	CKT 1
BL325		OPEN				65135	[BENLOMND	345.001	TO BUS		[TERMINAL	345.00]	CKT 1
	-	OPEN				65135	[BENLOMND	345.001			BENLOMND	230.001	CKT 1
BL326		OPEN				65135	[BENLOMND	345.001	TO BUS		SYRACUSE	345.001	CKT 1
	- 8	OPEN			BUS		BENLOMND	345.00]	TO BUS		BENLOMND	230.001	CKT 1
BL343	:	OPEN				65135	[BENLOMND	345.00]	TO BUS		[BENLOMND	138.00]	CKT 1
		OPEN			BUS		BENLOMND	345.00]	TO BUS		BENLOMND	230.001	CKT 2
BL345	:	OPEN			BUS		[BENLOMND	345.00]	TO BUS		[TERMINAL	345.001	CKT 1
		OPEN				65135	[BENLOMND	345.00]	TO BUS		[BENLOMND	230.00]	CKT 2
BL346	:	OPEN	LINE		BUS		[BENLOMND	345.00]	TO BUS		SYRACUSE	345.001	CKT 1
		OPEN	LINE		BUS		[BENLOMND	345.00]	TO BUS		[BORAH	345.00]	
BL366	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO BUS		[BORAH	345.001	CKT 1
		OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO BUS	65140	[BENLOMND	230.00]	CKT 2
BLTRMBLSYR	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO BUS	66510	[TERMINAL	345.00]	CKT 1
			LINE		BUS	65135	[BENLOMND	345.00]	TO BUS	66476	[SYRACUSE	345.00)	CKT 1
BLBORTRSBRY	:	OPEN	LINE	FROM	BUS	65135	[BENLOMND	345.00]	TO BUS	60060	[BORAH	345.00]	CKT 1
		OPEN	LINE	FROM	BUS	66565	[TREASTON	230.00]	TO BUS	60073	[BRADY	230.00]	CKT 1
BL202	:	OPEN				65135	[BENLOMND	345.00]	TO BUS	65140	[BENLOMND	230.00]	CKT 1
02.0000		OPEN		FROM			[BENLOMND	138.00]	TO BUS		[BENLOMND	230.00]	CKT 1
BL222	:	OPEN		FROM		65135	[BENLOMND	345.00]	TO BUS		[BENLOMND	230.00]	CKT 1
20115		OPEN				65135	[BENLOMND	345.00]		65140	[BENLOMND	230.00]	CKT 2
BL242	:	OPEN				65135	[BENLOMND	345.00]	TO BUS		[BENLOMND	230.00]	CKT 2
		OPEN		FROM			[BENLOMND	230.00]	TO BUS		[BENLOMND	138.00]	CKT 2
BL244	:	OPEN		FROM		65140	[BENLOMND	230.00]	TO BUS		[NAUGHTON	230.00]	CKT 1
Mark Control of the Control			LINE			65140	[BENLOMND	230.00]	TO BUS		[BENLOMND	138.00]	CKT 2
BL245	:	OPEN				65140	[BENLOMND	230.00]	TO BUS		[BIRCH CK	230.00]	CKT 1
en er a sin a sen er en er er			LINE			65140	[BENLOMND	230.00]	TO BUS		[BENLOWND	138.00]	CKT 2
BLNAUBLBIR	:	OPEN				65140	[BENLOMND	230.00]	TO BUS		[NAUGHTON	230.00]	CKT 1
TD 2.2.0	31	OPEN	LINE			65140	[BENLOMND	230.00]	TO BUS		[BIRCH CK	230.00]	CKT 1
JB330	•	OPEN		FROM		60085	[BRIDGER	345.00]	TO BUS		[BRIDGER	230.00]	CKT 1
		OPEN				60085	[BRIDGER	345.00]	TO BUS		[BRIDGER	230.00]	CKT 3
JB332	- 2	OPEN				60086 60085	[BRIDGER1	22.000]	TO BUS		[BRIDGER	345.00]	CKT 1
08332		OPEN		FROM			[BRIDGER	345.00]	TO BUS		[BORAH	345.00]	CKT &1
JB334	15	OPEN	LINE	FROM		60086	[BRIDGER1	22.000]	TO BUS		[BRIDGER	345.00]	CKT 1
00004	÷	OPEN	LINE	FROM		60085 60085	[BRIDGER	345.00]	TO BUS		[BRIDGER	230.00]	CKT 2
JB336		OPEN	LINE	FROM		60085	[BRIDGER [BRIDGER	345.00]	TO BUS		[BORAH	345.00]	CKT &1
00000			LINE	FROM		60085	[BRIDGER	345.00]		65220	[BRIDGER	230.00]	CKT 1
			LINE	FROM		60087		100 100 mm 1 2 10 10 10 10 10 10 10 10 10 10 10 10 10	TO BUS		[BRIDGER	230.00]	CKT 3
JB338	٠,			FROM		60087	[BRIDGER2 [BRIDGER2	22.000]	TO BUS	60085 60085	[BRIDGER	345.00]	CKT 1
00000	•		LINE			60085	[BRIDGER2	345.00]	TO BUS	60190	[BRIDGER [KINPORT	345.00] 345.00]	CKT 1 CKT &1
JB340		OPEN				60085	[BRIDGER	345.001	TO BUS	65220	[BRIDGER	230.00]	CKT 2
	Ť		LINE	FROM		60085	[BRIDGER	345.00]	TO BUS	60190	[KINPORT	345.00]	CKT &1
JB342		OPEN				60085	BRIDGER	345.00]	TO BUS		[BRIDGER	230.001	CKT 1
	7		LINE			60085	[BRIDGER	345.00]	TO BUS		[BRIDGER	230.00]	CKT 3
			LINE			60088	[BRIDGER3	22.000]	TO BUS	60085	[BRIDGER	345.00]	CKT 1
JB344	9	OPEN	LINE	FROM		60088	[BRIDGER3	22.0001	TO BUS	60085	[BRIDGER	345.00]	CKT 1
			LINE	FROM		60085	[BRIDGER	345.00]	TO BUS	60092	[BRIDGE&B	345.00]	CKT 1
JB346	:	OPEN		FROM		60085	[BRIDGER	345.001	TO BUS	65220	BRIDGER	230.00]	CKT 2
21 C. M. C.	8		LINE	FROM		60085	[BRIDGER	345.00]	TO BUS	60092	[BRIDGE&B	345.001	CKT 1
JB352	:	OPEN	LINE	FROM		60085	BRIDGER	345.00]	TO BUS	65220	[BRIDGER	230.00]	CKT 1
			LINE	FROM		60085	[BRIDGER	345.00]	TO BUS	65220	[BRIDGER	230.001	CKT 3
		OPEN	LINE	FROM	BUS	60089	[BRIDGER4	22.000]	TO BUS	60085	[BRIDGER	345.00]	CKT 1
JB354						60085	BRIDGER	345.00]	TO BUS		[BRIDGER	230.001	CKT 2
								22.000]				345.00]	
JBGOSJBKIN	:	OPEN	LINE	FROM	BUS	60085	BRIDGER	345.00]			[BRIDGE&B	345.00]	
		OPEN	LINE	FROM	BUS		[BRIDGER	345.00]			KINPORT	345.00]	
		OPEN	LINE	FROM	BUS		[BRIDGER3	22.000]	TO BUS		[BRIDGER	345.00]	
		OPEN	LINE	FROM	BUS	60089	[BRIDGER4	22.000]			BRIDGER	345.00]	
JBGOSJBBOR	20	OPEN	LINE	FROM	BUS		[BRIDGER	345.001	TO BUS	60092	[BRIDGE&B	345.00]	
		OPEN	LINE	FROM	BUS		[BRIDGER	345.00]	TO BUS	60060	BORAH	345.00]	
							[BRIDGER3	22.000]			BRIDGER	345.00]	
		OPEN	LINE	FROM	BUS	60089	[BRIDGER4	22.0001			[BRIDGER	345.00]	
JBKI NJBBOR	:						[BRIDGER		TO BUS		KINPORT	345.00]	
		OPEN	LINE	FROM	BUS		[BRIDGER	345.00]			[BORAH	345.00)	
		OPEN	LINE	FROM	BUS	60088	[BRIDGER3	22.000]			[BRIDGER	345.00]	CKT 1
		OPEN	LINE	FROM	BUS		[BRIDGER4	22.000]			[BRIDGER	345.00]	CKT 1
JB292	:	OPEN	LINE	FROM	BUS	65220	[BRIDGER	230.00]	TO BUS		MUSTANG	230.00]	CKT 1
							[BRIDGER				[PT ROCKS	230.00]	CKT 1
							[ROCKSPGS	230.00]	TO BUS	66250	[PT ROCKS	230.00]	
JB294	:	OPEN	LINE	FROM	BUS	65220	[BRIDGER	230.00]	TO BUS	66315	[ROCKSPGS	230.00]	CKT 1

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			- 1000072	10000		75.00		2000 000			1222142	V		
			LINE			65220		230.00]			66250	[PT ROCKS	230.00]	
JB316		OPEN	LINE		BUS BUS			230.00]		BUS	66250	[PT ROCKS	230.00]	CKT 1
00210	- 5	OPEN						345.00]		BUS	66315	[ROCKSPGS [BRIDGER	230.00]	CKT 1 CKT 2
JB348		OPEN						230.00]		BUS	66020	MUSTANG	230.00	CKT 1
		OPEN						345.00]		BUS	65220	[BRIDGER	230.00	CKT 1
		OPEN	LINE	FROM	BUS	60085	[BRIDGER	345.00]	TO	BUS	65220	[BRIDGER	230.00]	
CW322	:	OPEN	LINE		BUS		[CAMP WIL	345.00]	TO	BUS	65995	[MONA]	345.00]	CKT 3
		OPEN			BUS			345.00]		BUS	66510	[TERMINAL	345.00]	CKT 1
CW323	:	OPEN					[CAMP WIL	345.00]		BUS	65995	[MONA]	345.00]	CKT 1
CHARLO E		OPEN					[CAMP WIL	345.00]		BUS	66133	[OQUIRRH	345.00]	CKT 1
CW325		OPEN			BUS		[CAMP WIL	345.00]		BUS	66400	[SPAN FRK	345.00]	CKT 1
CWTRMCWOOR	٠,	OPEN			BUS		[CAMP WIL	345.00] 345.00]		BUS	66080 66510	[NINETY S	345.00]	CKT 1
CHIRTCHOOK	•	OPEN					[CAMP WIL	345.00]		BUS	66133	[TERMINAL [OQUIRRH	345.00] 345.00]	CKT 1 CKT 1
CW90S1&2		OPEN					[CAMP WIL	345.001		BUS	66080	ININETY S	345.00]	CKT 1
			LINE			65260	[CAMP WIL	345.00]		BUS	66080	[NINETY S	345.00]	CKT 2
CWMON2,4	:	OPEN	LINE				[CAMP WIL	345.00]		BUS	65995	[MONA]	345.001	CKT 2
		OPEN	LINE	FROM	BUS	65260	[CAMP WIL	345.00]	TO	BUS	65995	[MONA]	345.00]	CKT 4
CWMON1,3	:	OPEN				65260	[CAMP WIL	345.00]		BUS	65995	[MONA]	345.00]	CKT 1
	12	OPEN					[CAMP WIL	345.00]		BUS	65995	[MONA]	345.00]	CKT 3
CENTRAL XFN	1S:			FROM			[REDBUTTE	345.00]		BUS	65315	[CENTRAL	138.00]	CKT 1
DJ204			LINE				[REDBUTTE	345.00]		BUS	65315	[CENTRAL	138.00]	CKT 2
D0204	•	OPEN	LINE			65420 65420	[DAVEJOHN [DAVEJOHN	230.00]		BUS	65425 73190	[DAVEJOHN [STEGALL	115.00]	CKT 1
DJ238		OPEN					[DAVEJOHN	230.00]		BUS	65300	[CASPERPP	230.00] 230.00]	CKT 1
	Ġ	OPEN		FROM			[DAVEJOHN	230.00]	170.000	BUS	65445	[DAVEJON4	22.000]	CKT 1
DJ268	:	OPEN	100000000000000000000000000000000000000				[DAVEJOHN	230.00]		BUS	73107	[LAR.RIVR	230.00]	CKT 1
		OPEN	LINE	FROM	BUS	65420	[DAVEJOHN	230.00]		BUS	65440	[DAVEJON3	13.800]	CKT 1
EM303	:	OPEN	LINE	FROM	BUS	65510	[EMERY	345.00]	TO	BUS	65515	[EMERY	138.00]	CKT 1
		OPEN		FROM			[EHUNTR 3	22.000]	TO	BUS	65510	[EMERY	345,00]	CKT 1
EM321	:	OPEN		FROM			[EMERY	345.00]		BUS	65805	[HUNTNGTN	345.00]	CKT 1
			LINE			65490	[EHUNTR 1	24.000]			65510	[EMERY	345.00]	CKT 1
EM323	0	OPEN	LINE	FROM		65490	[EHUNTR 1	24.000]		BUS	65510	[EMERY	345.00]	CKT 2
EPISZS	•	OPEN		FROM		65510 65500	[EMERY [EHUNTR 3	345.00]		BUS	66340 65510	[SIGURD [EMERY	345.00] 345.00]	CKT 1
EM324		OPEN				65510	[EMERY	345.00]			66340	[SIGURD	345.00]	CKT 2
	3	OPEN		FROM		65510	[EMERY	345.00]		BUS	65515	[EMERY	138.001	CKT 1
EM341	:	OPEN				65510	[EMERY	345.00]		BUS	65805	HUNTNGTN	345.001	CKT 1
		OPEN	LINE	FROM	BUS	65510	[EMERY	345.00]	TO	BUS	65515	[EMERY	138.00]	CKT 1
EM343	ž.	OPEN	LINE	FROM	BUS	65510	[EMERY	345.00]	TO	BUS	66340	[SIGURD	345.00]	CKT 1
SHIP WAS TO		OPEN	LINE	FROM		65510	[EMERY	345.00]	TO	BUS	65515	[EMERY	138.00]	CKT 1
EMSIG1&2	;	OPEN				65510	[EMERY	345.00]			66340	[SIGURD	345.00]	CKT 1
LIMOOA	24	OPEN		FROM		65510	[EMERY	345.00]			66340	[SIGURD	345.00]	CKT 2
HT301		OPEN	LINE	FROM		65805	[HUNTNGTN	345.00]			66400	[SPAN FRK	345.00]	CKT 1
HT303		OPEN	LINE	FROM		65805 65800	[HUNTNGTN [HUNTN G2	345.00] 22.000]			65810 65805	[HUNTNGTN [HUNTNGTN	138.00] 345.00]	CKT 2 CKT 1
111000	1		LINE	FROM		65800	[HUNTN G2	22.000]			65805	HUNTNGTN	345.001	CKT 1 CKT 2
			LINE	FROM		65805	HUNTNGTN	345.001			65810	HUNTNGTN	138.001	CKT 2
HT322	:	OPEN	LINE	FROM	BUS	65795	[HUNTN G1	22.000]			65805	HUNTNGTN	345.001	CKT 1
		OPEN	LINE	FROM	BUS	65795	[HUNTN G1	22.000]	TO	BUS	65805	[HUNTNGTN	345.00]	CKT 2
				FROM		65805	[HUNTNGTN	345.00]	TO		65510	[EMERY	345.00]	CKT 1
HT323	:	OPEN	LINE	FROM		65800	[HUNTN G2	22.000]			65805	[HUNTNGTN	345.00]	CKT 1
		OPEN	LINE	FROM		65800	[HUNTN G2	22.000]			65805	[HUNTNGTN	345.00]	CKT 2
M12334	(0)	OPEN	LINE	FROM		65805	[HUNTNGTN	345.00]			65995	[MONA	345.00]	CKT 1
MV324	•	OPEN				65945	[MIDVALLY [MIDVALLY	345.00]			66080	[NINETY S [MIDVALLY	345.00] 138.00]	CKT 1
MV344							[MIDVALLY					[TERMINAL	345.00]	
WANTED TO	1974						[MIDVALLY					[NINETY S	345.00]	
MV364	:	OPEN	LINE	FROM	BUS	65945	[MIDVALLY					[TERMINAL	345.00]	
						65945	[MIDVALLY	345.00]				[MIDVALLY	138.00]	
MN345	:					65995	[MONA]					[HUNTNGTN	345.00]	
101016						65995	[MONA	345.00]				[CAMP WIL	345.00]	
MN346	:					65995	[MONA	345.00]				[SIGURD	345.00]	
MN347						65995 65995	[MONA]	345.00]				[CAMP WIL	345.00]	
raio-a r						65995	[MONA	345.00]				[SIGURD [CAMP WIL	345.00] 345.00]	
MN349						65995	[MONA	345.00]				[INTERMT	345.00]	
O'HOWATE.	85					65995	[MONA	345.00]				[CAMP WIL	345.00]	
MNSG1&2	:						[MONA	345.00)				[SIGURD	345.00]	
						65995	[MONA]	345.00]				[SIGURD	345.00]	
MT2	:					66010	[MONUMENT	230.00]				EXXON WY	230.00]	CKT 1
1							[MONUMENT	230.00]				[BLACKSFK	230.00]	
MT4	:						[MONUMENT	230.00]				EXXON WY		CKT 1
						66010 66010	[MONUMENT	230.00]				[MONU PST	230.00]	CKT 1
MT6							[MONUMENT [MONUMENT	230.00]				MONU PST	230.00]	
****	•						[MONUMENT	230.00]				SO TRONA MONU PST	230.00]	CKT 1 CKT 1
							[MONUMENT	230.00]				MONU PST	230.00]	CKT 2
MT8	:						[MONUMENT					SO TRONA	230.00]	
							[MONUMENT					BLACKSFK	230.00]	

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	MT652	:	OPEN	LINE	FROM	1 BUS	66011	[MONU PST	230.00	то	BUS	65374	[CRAVENCK	230.00]	CKT	1
				LINE		1 BUS		[MONU PST	230.00	10000	BUS		[MONUMENT	230.00		2
	MT656	:	OPEN			1 BUS		[MONU PST	230.00	207077	BUS		[CRAVENCK	230.00]	CKT	1
	MT660	-	OPEN	LINE			66011	[MONU PST	230.00	(STACK)	BUS		[NAUGHTON	230.00]	A -0.00 PARTS	1
	111000	•	OPEN					[MONU PST [MONUMENT	230.00		BUS		[NAUGHTON [MONU PST	230.00]		1
	MT664	:	OPEN					[MONUMENT	230.00	1 TENEY	BUS		[MONU PST	230.00]		1
			OPEN	LINE	FROM	1 BUS	66010	[MONUMENT	230.00	A 1000000	BUS		[MONU PST	230.00]		2
	NT211	:	OPEN					[NAUGHTON	230.00		BUS		[NAUGT G1	18.000]		1
	NT212			LINE				[NAUGHTON [NAUGHTON	230.00	N 19051	BUS		[MONU PST	230.00]		1
	HILLE	•		LINE				[NAUGHTON	230.00	1390.60	BUS		[NAUGT G2 [BIRCH CK	20.000]		1
	NT213	:	OPEN					[NAUGHTON	230.00		BUS		[NAUGT G3	24.0001		i
			OPEN					[NAUGHTON	230.00		BUS		[BENLOMND	230.00]		1
	NT214	:	OPEN					[NAUGHTON	230.00]		BUS		[NAUGHTN1	138.00]		2
	NT215		OPEN					[NAUGHTON [NAUGHTON	230.00		BUS		[TREASTON [NAUGHTN2	230.00] 138.00]		1
			OPEN					[NAUGHTON	230.00		BUS		[CRAVENCK	230.001		1
	905303/304	:	OPEN					[NINETY S	345.00]		BUS		[CAMP WIL	345.00]		2
	000331		OPEN					[NINETY S	345.00]		BUS	66085	[NINETY S	138.00]		1
	905321	1	OPEN					[NINETY S [NINETY S	345.00] 345.00]		BUS	66085 66085	[NINETY S	138.00] 138.00]		1
	905323	:	OPEN					[NINETY S	345.00]		BUS		[CAMP WIL	345.001		2
			OPEN	LINE	FROM	BUS		[NINETY S	345.00]		BUS	65945	[MIDVALLY	345.001		1
	905324	:	OPEN					[NINETY S	345.00]		BUS	65260	[CAMP WIL	345.00]	CKT	1
	OOMEOOMM			LINE				[NINETY S	345.00]		BUS	66510	[TERMINAL	345.00]		1
	90MV90TM	:	OPEN	N. 100 CO. O. O	FROM FROM			[NINETY S	345.00]		BUS		[MIDVALLY	345.00]		1
	PT302		OPEN					[NINETY S [PINTO	345.00]		BUS	66510 66235	[TERMINAL [PINTO PS	345.00] 345.001		1
	11002	•		LINE				[PINTO	345.00]		BUS	66229	[PINTO 3	13.800]		2
	PL298	:	OPEN		FROM		66240	PLATTE	230.00]		BUS	66245	PLATTE	115.00)	CKT	
	PL304	:	OPEN	LINE	FROM	BUS	66240	[PLATTE	230.00]		BUS	65975	[MINERS	230.001	CKT	77
	RB341	:	OPEN	LINE	FROM	BUS	66280	[REDBUTTE	345.00]	TO	BUS	66274	[REDBUTTE	138.00]	CKT	
				LINE	FROM			[REDBUTTE	345.00]	11.77	BUS	65315	[CENTRAL	138.00]	CKT	1
	DD262		OPEN	LINE	FROM		66280	[REDBUTTE	345.00]		BUS	65315	[CENTRAL	138.00]	CKT	
	RB362	:	OPEN	LINE	FROM FROM		66280 66280	[REDBUTTE	345.00]			65312	[THREE PK	345.00]	CKT	
	RV112	4		LINE	FROM		66305	[REDBUTTE [RIVERTON	345.00] 230.00]		BUS	66274 66535	[REDBUTTE [THERMOPL	138.00] 230.00]	CKT C	
				LINE	FROM			[RIVERTON	230.001		BUS	66740	[WYOPO	230.001	CKT :	
	RV138		OPEN		FROM			[RIVERTON	230.00]		BUS	73170	[RIVERTON	115.00]	CKT	
			OPEN	LINE	FROM			[RIVERTON	230.00]	TO	BUS	66740	[WYOPO	230.00]	CKT :	
	RV172	:	OPEN	LINE	FROM		66305	[RIVERTON	230.00]		BUS	73170	[RIVERTON	115.00]	CKT :	1
	DC1 20	- 1	OPEN	LINE	FROM			[RIVERTON	230.00]		BUS	65300	[CASPERPP	230.00]	CKT :	
	RS128	•	OPEN	LINE			66315 66315	[ROCKSPGS	230.00]		BUS	66180 66250	[PALISADE	230.00]	CKT	
	RS132		OPEN	LINE			66315	[ROCKSPGS	230.00]			66180	[PT ROCKS [PALISADE	230.00]	CKT :	
			OPEN	LINE			66315	[ROCKSPGS	230.00]		BUS	65555	FIREHOLE	230.001	CKT :	
	RSPTRSJB	:	OPEN	LINE	FROM	BUS	66315	[ROCKSPGS	230.00]		BUS	66250	[PT ROCKS	230.00]	CKT :	
			OPEN	LINE			66315	[ROCKSPGS	230.00]			65220	[BRIDGER	230.00]	CKT :	
	SG302	3	OPEN	LINE			66340 66340	[SIGURD	345.00]			65995	[MONA	345.00]	CKT 2	
	SG303			LINE			66340	[SIGURD	345.00] 345.00]		BUS	66345 65510	[SIGURD [EMERY	230.00] 345.00]	CKT :	
		•		LINE			66340	[SIGURD	345.001		BUS	66345	[SIGURD	230.00]	CKT 2	2
	SG304	:	OPEN	LINE	FROM		66340	[SIGURD	345.00]	TO		65995	MONA	345.001	CKT 1	
			OPEN	LINE			66340	SIGURD	345.00]	TO	BUS	66345	[SIGURD	230.00]	CKT	
	SG324	:					66340	[SIGURD	345.00]			65995	[MONA]	345.00]	CKT 1	
	SF327	÷						[SIGURD [SPAN FRK	345.00] 345.00]				[EMERY	345.00]		
	31321	Ť						[SPAN FRK	345.00]				[CAMP WIL [SPAN FRK	345.00]		
	SF345CLSD	:						[SPAN FRK	345.00]				[SPAN FRK	138.00]		
			OPEN	LINE	FROM	BUS	66400	[SPAN FRK	345.00]				[SPAN FRK	138.00]		
	SF347CLSD	ŧ						[SPAN FRK	345.00]	TO	BUS	65260	[CAMP WIL	345.00]	CKT 1	1
	SF357							[SPAN FRK	345.00]				[HUNTNGTN	345.00]		
	3133/	;						[SPAN FRK [SPAN FRK	345.00]				[HUNTNGTN	345.00]	CKT 1	
	TM304	:						[TERMINAL	345.00]				[SPAN FRK [NINETY S	138.00] 345.00]	CKT 1	
								[TERMINAL	345.00]				[TERMINAL	138.00]	CKT 2	
	IM308	:	OPEN	LINE	FROM	BUS	66510	[TERMINAL	345.00]				[OQUIRRH	345.00]		
	m 10 0 5							[TERMINAL	345.00]	TO	BUS	66520	[TERMINAL	138.00]	CKT 2	2
	IM309	;						[TERMINAL	345.00]				[CAMP WIL		CKT 1	
1	rm323							[TERMINAL	345.00]				[TERMINAL	138.00]		
	111020	•						[TERMINAL [TERMINAL	345.00]				[MIDVALLY [TERMINAL	345.00]		
1	rm324	:						[TERMINAL	345.00]				[NINETY S	138.00]	CKT 2	
		975						[TERMINAL	345.00]				[TERMINAL	138.00]		
1	ľM328		OPEN	LINE	FROM	BUS	66510	[TERMINAL	345.00]	TO	BUS	66133	[OQUIRRH	345.00]	CKT 1	ğ
	0.4200							[TERMINAL	345.00]			65135	[BENLOMND	345.00]	CKT 1	
- 1	rM329							[TERMINAL					[CAMP WIL			
1	M348							[TERMINAL [TERMINAL	345.00]				[SYRACUSE [BENLOMND	345.00] 345.00]	CKT 1	
								[TERMINAL					[TERMINAL	138.00]		
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TM349	:		LINE			66510	[TERMINAL	345.00]	0.771 (70)	Harris Carrio Carrio	66476	[SYRACUSE	345.00]	CKT	100
		OPEN	100 00 00 100	FROM	100000000000000000000000000000000000000		[TERMINAL	345.00]		BUS	66520	[TERMINAL	138.00]	CKT	1
TMBLTMSY	:	OPEN		FROM		66510	[TERMINAL	345.00]			65135	[BENLOMND	345.00]	CKT	
			LINE	FROM			[TERMINAL	345.00]	TO	BUS	66476	[SYRACUSE	345.00]	100	
TM90TMMV	:	OPEN		FROM		66510	[TERMINAL	345.00]		BUS	66080	[NINETY S	345.00]	CKT	1
		OPEN		FROM	170000000000000000000000000000000000000	66510	[TERMINAL	345.00]	TO	BUS	65945	[MIDVALLY	345.00]	CKT	1
TMCWTMOQ	:	OPEN	LINE	FROM	BUS	66510	[TERMINAL	345.00]	TO	BUS	65260	[CAMP WIL	345.00]	CKT	1
		OPEN	LINE	FROM	BUS	66510	[TERMINAL	345.00]	TO	BUS	66133	[OQUIRRH	345.00]	CKT	1
TH14	;	OPEN	LINE	FROM	BUS	66535	[THERMOPL	230.00]	TO	BUS	66305	[RIVERTON	230.001	CKT	1
		OPEN	LINE	FROM	BUS	66535	[THERMOPL	230.00]	TO	BUS	66540	THERPACE	115.001	CKT	1
TH16,220	:	OPEN	LINE	FROM	BUS	66535	[THERMOPL	230.00]	TO	BUS	65720	[GRASS CK	230.001	CKT	1
		OPEN	LINE	FROM	BUS	66535	[THERMOPL	230.00]	TO	BUS	66540	THERPACE	115.001	CKT	1
TH224	:	OPEN	LINE	FROM	BUS	66535	THERMOPL	230.001			66305	[RIVERTON	230.001	CKT	1
		OPEN	LINE	FROM	BUS	66535	[THERMOPL	230.001		BUS	65095	BADWATER	230.001	CKT	ī
TH228		OPEN	LINE	FROM	BUS	66535	[THERMOPL	230.001			66540	[THERPACE	115.001		1
		OPEN		FROM		66535	THERMOPL	230.001		BUS	65095	[BADWATER	230.001	CKT	1
TR220						66565	TREASTON	230.001	200	BUS	60073	[BRADY	230.001	CKT	î
		OPEN				66565	TREASTON	230.001		BUS	66570	TREASTON	138.00]	CKT	100
TR240	3	OPEN		FROM		66565	TREASTON	230.001		BUS	66050	INAUGHTON	230.001		ī
		OPEN		FROM		66565	TREASTON	230.001			66570	TREASTON	138.001		ī
TR230CLSD	34	OPEN		FROM		66565	TREASTON	230.001		BUS	60073	[BRADY	230.001	CKT	î
TRESOCIODO						66565	[TREASTON	230.001		BUS	66050	[NAUGHTON	230.001		1
TR232CLSD				V7794794057071179		66565	[TREASTON	230.001			66570	[TREASTON	138.001		
TRESECTION	ं	OPEN	0.55, 726, 9750	FROM		66565	[TREASTON	230.001							1
TRBRJBKP	0	OPEN		FROM		66565	TREASTON	230.001	TO	BUS	66570	[TREASTON	138.00]		2
TUDUNDUL		OPEN		FROM							SECTION SECTION SECTION	[BRADY	230.00]		1
TRBRJBBO	2	100 HT 100 HT 100 HT				60085 66565	[BRIDGER	345.00]		BUS	60190	[KINPORT	345.00]	CKT	
IKBKUBBU		OPEN	2001-01-2007				[TREASTON	230.00]	TO		60073	[BRADY	230.00]	CKT	1
MINIO O. C.		OPEN		FROM		60085	[BRIDGER	345.00]	TO		60060	[BORAH	345.00]	CKT	
WY326		OPEN	PERSONAL PROPERTY.	FROM	7734774790	66725	[WYODAK	230.00]		BUS	65293	[CARR DRA	230.00]	270.00	1
101001		OPEN		FROM	100000000000000000000000000000000000000	66725	[WYODAK	230.00]		BUS	73294	[HUGHES	230.00]	CKT	1
WY334	:			FROM		66725	[WYODAK	230.00]	1000000	700.70.70	73148	OSAGE	230.00]	1000	1
			LINE			66725	[WYODAK	230.00]	TO		66730	[WYODAK 1	22.000]		1
YW278	:	OPEN		FROM		66750	[YELOWILP	230.00]			73229	[YELLOWBR	230.00]	CKT	1
			LINE	FROM		66750	[YELOWTLP	230.00]		BUS	66755	[YELOWTLP	161.00]	200	1
YW284	:		LINE	FROM		66750	[YELOWTLP	230.00]			65660	[GOOSE CK	230.00]	CKT	1
			LINE	FROM		66750	[YELOWTLP	230.00]		BUS	62045	[BLGS PHA	230.00]	CKT	1
YW286	:	OPEN	LINE	FROM	BUS	66750	[YELOWTLP	230.00]	TO	BUS	65575	[FRANNIE	230.00]	CKT	1
		OPEN	LINE	FROM	BUS	66750	[YELOWILP	230.00]	TO	BUS	62045	[BLGS PHA	230.00]	CKT	1
YW290	:	OPEN	LINE	FROM	BUS	66750	[YELOWTLP	230.00]	TO	BUS	65575	[FRANNIE	230.00]	CKT	1
		OPEN	LINE	FROM	BUS	66750	[YELOWTLP	230.00]	TO	BUS	66755	[YELOWTLP	161.00]	CKT	1
YW296	:	OPEN	LINE	FROM	BUS	66750	[YELOWILP	230.00]	TO	BUS	65660	[GOOSE CK	230.00]	CKT	1
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OPEN LINE FROM BUS 66750 [YELOWTLP

230.00] TO BUS 73229 [YELLOWBR 230.00] CKT 1

APPENDIX 2

WECC Transient Stability and Post-Transient Voltage Criteria

	WECC Transient	Stability and Post-Tran	sient Voltage Criteri	a
Performance Level	Disturbance	Transient Voltage Dip Criteria	Minimum Transient Frequency	Post Transient Voltage Deviation
В	Generator One Circuit One Transformer PDCI	Max V Dip – 25% Max Duration of V Dip Exceeding 20% - 20 cycles Not to exceed 30% at non-load busses.	59.6 Hz for 6 cycles or more at a load bus.	Not to exceed 5% at any bus. *
С	Two Generators Two Circuits IPP DC	Max V Dip – 30% at any buss. Max Duration of V Dip Exceeding 20% - 40 cycles at load busses.	59.0 Hz for 6 cycles or more at a load bus.	Not to exceed 10% at any bus.